A Hitchcock Publication

Feature Articles 43-81
Finishing Section 87
Safety Section 95
Veneer & Plywood Section 119

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SEPTEMBER, 1950

Complete Index 5
Products Index 210
Advertisers Index 212

The Black Brothers

VENEER PRESS RETAINING CLAMP

THE DROP FORGED

"SUPERDREADNAUGHT"

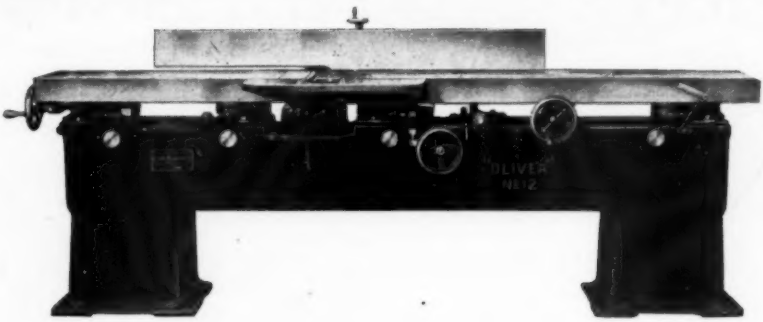
The Drop Forged Steel head of The Black Brothers "SUPERDREADNAUGHT" makes it stronger and longer-lasting than the ordinary retaining clamps made of cast malleable iron or cast steel. Drop forging creates a head that is absolutely true to pattern and which will always fit the beam perfectly. The SUPERDREADNAUGHT also has the distinctive Black Brothers design which allows the retainer to grip the beam close to the web so that no undue strain will be brought to bear on the beam flanges. In retainer clamps . . . as in other gluing equipment . . . The Black Brothers build the best.

"If It Is Gluing Equipment - We Have It"

THE BLACK BROTHERS CO., INC.

MENDOTA, ILLINOIS, U. S. A.

"OLIVER" No. 12 Ball Bearing HAND PLANER and JOINTER



for accurate rugged production work

This "Oliver" Jointer planes smoothly, or trues-up long or short pieces of lumber, taking it out-of-wind, and making perfect glue joints. Its operating table tilts sideways up to 5° to plane draft patterns.

A heavy strongly ribbed bed, mounted on two cabinet columns, eliminates vibration. Tables are adjustable vertically to take a cut up to ¾" deep. They draw away from cylinder to simplify changing of knives. A bevel fence is adjustable across the table. Fence tilts up to 45° with worm gear and gear tilting device.

The safety cylinder, with 5" cutting diameter, is mounted in over-size ball bearings, and supported independently by a one-piece solid yoke. Cylinder has three knives—four-knife head available. A mechanical brake shuts off current and quickly stops the cylinder.

This "Oliver" Jointer can be fitted with motor knife grinding and jointing attachment. Also a rabbeting attachment is available.

The "Oliver" No. 12 is made in three sizes to plane 20", 24" and 30" wide. It is offered with three types of motor drive: shaftless, coupled, and belted. For complete information, **write for Bulletin No. 12.**

"Oliver" Jointers are also made in smaller sizes—6", 8", 12" and 16" widths.

OLIVER MACHINERY COMPANY

Established 1890 **GRAND RAPIDS 2, MICHIGAN**

easy to fabricate

Can be punched, drilled, routed, sawed, beveled, sanded, shaped and die-cut. Saves time, reduces costs!

stay put!

No pulling; Masonite Hardboards are equally strong in two directions. Perfect core or cross-banding material for door panels, end panels, tops, and drawer bottoms.

won't split, splinter, crack, dent or chip The same consistency through and through. No "peeling" at the edges. No cracks to let dust through. No splinters to snag sheer hosiery or fine underthings.

take and hold any finish or lamination Paints, enamels, lacquers, stains or wax can be applied by brushing or spraying. Paint or enamel can be baked for one hour up to 350 degrees. Masonite Hardboards can be silk-screened or lithographed. Laminate wood, veneer, fabric, metal or plastic to them. There is no grain to rise and mar handsome finishes

long-lasting

Masonite Hardboards will last the life of the furniture. Tough, hard and extremely durable. Resist moisture permanently

resist surface injuries

With their high density and hardness, smooth-surfaced Masonite Hardboards resist dents, scratches, scuffs and other abrasions.

in any case...

MASONITE HARDBOARDS

You can't always see them in the finished product. Sometimes they have been given a beautiful surface finish, or perhaps they have gone to work as a rigid core material for fine quality grained woods.

Other times you *will* see them. In the backs of case goods, in drawer bottoms, in dust stops, and many other useful places.

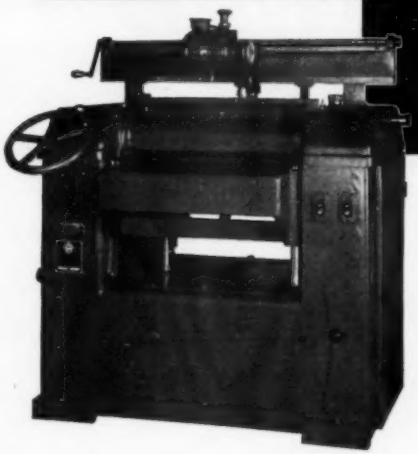
Masonite Hardboards are doing a lot of jobs right now in furniture of all types and in all price lines . . . in case goods, cabinets, juvenile furniture and specialties. Wherever they are, they're adding to quality, increasing value, cutting production time, and lowering costs.

All 39 different types and thicknesses of Masonite Hardboards are ready to work for you! To get the details, write Masonite® Corporation, Dept. W-1, 111 W Washington St., Chicago 2, Ill.

MASONITE CORPORATION

More than 125 leading furniture manufacturers use Masonite Hardboards

DIVIDEND DESIGN gives the PORTER 405 SURFACER 5 Big Advantages



- HIGHER SPEED OPERATION
- PREMIUM CAPACITY
- FASTER ADJUSTMENT
- EASIER OPERATION
- LONGER LIFE

Because of Dividend Design, a Porter 405 Surfacer will handle more lumber at lower cost than ordinary machines. Its extra margin of speed, capacity and strength produces heavier cuts, smoother work and a more profitable operation.

DIVIDEND DESIGN makes the Porter 405 Surfacer extra fast for surfacing at higher speeds. A matched "V" belt drive rotates the cutterhead at 6,000 RPM to assure clean, smooth, perfect work. This high speed is made practical by the newly designed chipbreaker which keeps the machine running free at all times.

DIVIDEND DESIGN permits heavier cuts on a Porter 405 Surfacer. Free and easy cutting action makes possible the use of an increased blade angle without increasing the size of the motor. This means greater surfacing capacity with no rise in power costs.

DIVIDEND DESIGN simplifies adjustment of a Porter Surfacer. The operator quickly varies the rate of feed even as the lumber moves through the machine.

DIVIDEND DESIGN makes it easier to surface pieces of many different sizes and shapes. Individual magnetic controls prevent operation of the feed unless the cylinder is running. All rolls are power driven.

DIVIDEND DESIGN prolongs the life of a Porter Surfacer. It has the extra strength and extreme rigidity of welded steel, ribbed construction. This provides a durability achieved only with excessive weight with cast iron.

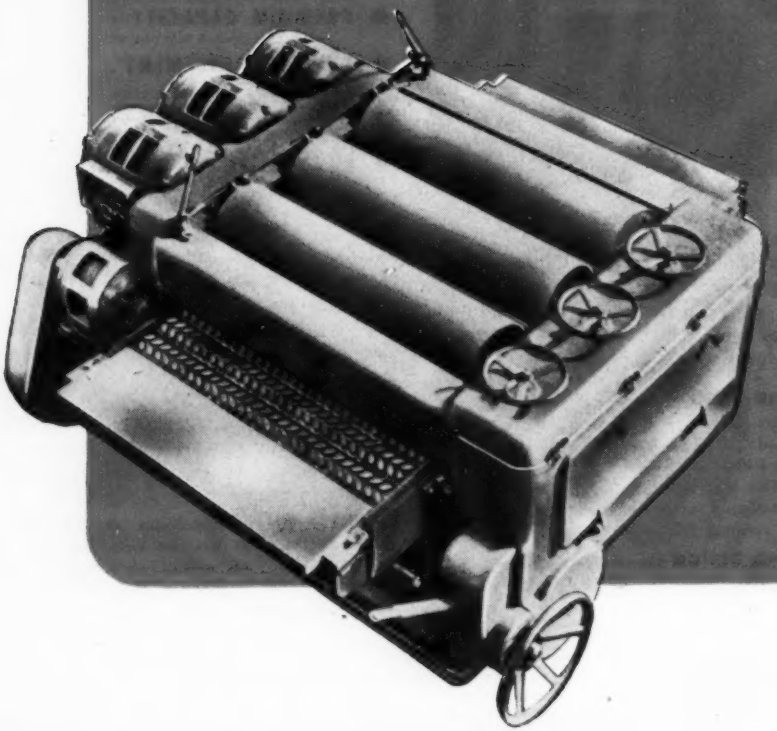
Write today for complete information on the advantages of Porter **DIVIDEND DESIGNED** *machinery*

C. O. PORTER Machinery Co.

668 Front Ave., N. W. Grand Rapids 4, Michigan

THE SMITH No. 505 THREE DRUM ENDLESS BED SANDER

FOR THE FINEST AND THE GREATEST PRODUCTION



H. B. SMITH MACHINE CO.

SMITHVILLE, NEW JERSEY

Wood Working Digest

SEPTEMBER, 1950 — OUR FIFTY-SECOND YEAR

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The Editor's Page 35
Pointed Paragraphs 37
Automatic Lubrication of Woodworking Machinery 43
By Francis A. Westbrook
Cutting Technique for Wood (Part 6) 55
By Thomas D. Perry
Fire Retardant Wood in Industry 67
By R. H. Bescher
The Place of an Award Program in Your Woodworking Plant 74
By John Lambert
Are Our Oak Trees Doomed by Oak Wilt? 81
By Curtis May
Finishing of Philippine Mahogany 87
By E. R. Hollinger
Safety Pays Off in North Carolina's Woodworking Industry 95
By Forrest H. Shuford
Woodworking Industry Notes 110
You Can Help the G.I.'s Choose 115
Veneer, Plywood and Laminated Wood Section 119
The Softwood Plywood Market — Present and Future 121
By C. E. Devlin
Veneer and Plywood 141
By Ned Bailey
Equipment and Supplies for the Woodworking Industry 163
Mechanics Through the Ages 186
The Market Place 188
Wood Working Digest Buyer's Service 190
Products Index 210
Index to Advertisers 212

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ASSURE HIGH SPEED PRODUCTION

BIG CHIEF

The most dependable knife for general purpose high production work.

KNIFE SPECIALISTS SINCE 1891

MOHAWK

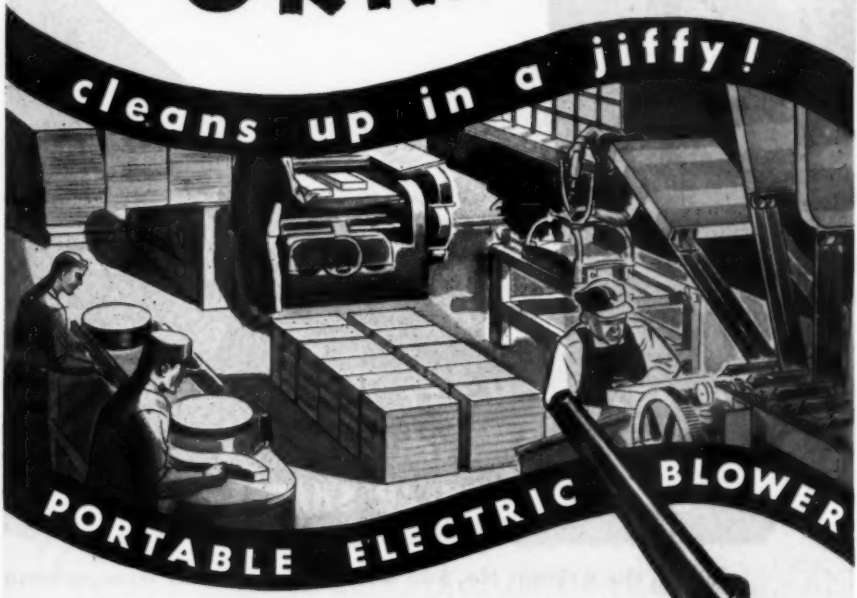
Can withstand hard knots in Southern and similar soft woods.

THE **WAPAKONETA** MACHINE COMPANY

WAPAKONETA, OHIO

TORNADO®

cleans up in a jiffy!



PORTABLE ELECTRIC BLOWER

blows away dust, sandings, chips, shavings and debris with powerful blast of air!

Shoots a concentrated, high speed blast of clean dry air that quickly and safely cleans all wood working equipment and machinery. Reduces breakdowns; eliminates fire and health hazards. Low cost. Converts into portable Vacuum Cleaner.

FREE! Bulletin 579

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5100 N. Ravenswood Ave. • Chicago 40, Ill.

BREUER ELECTRIC MFG. CO.—Dept. W93
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Please send us your Bulletin No. 579.

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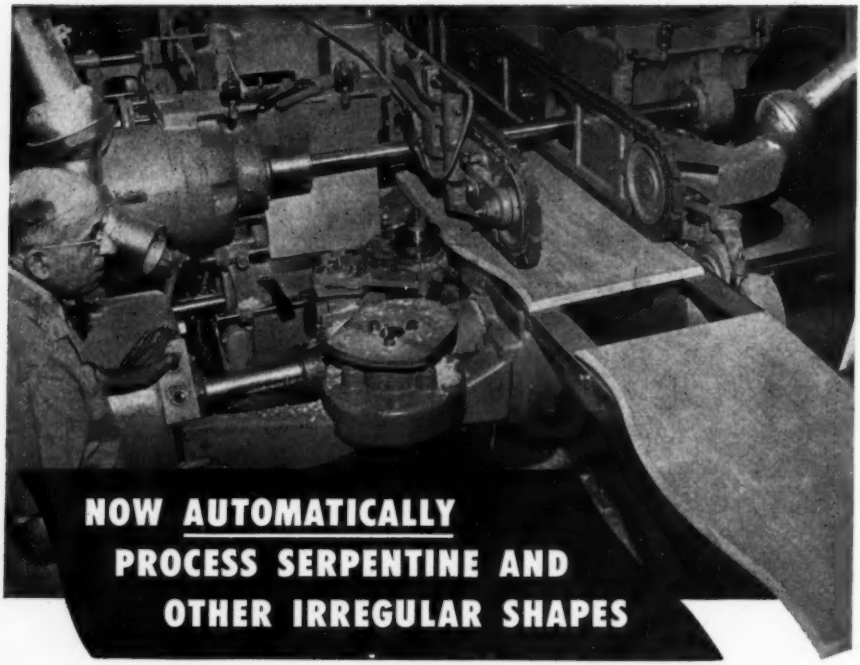


NOW AUTOMATICALLY PROCESS SERPENTINE AND OTHER IRREGULAR SHAPES

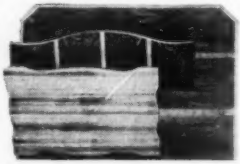
. . . with the GREENLEE No. 545 Double-End Tenoner incorporating the revolutionary new GREENLEE Irregular Shaping Attachment

Again the versatile GREENLEE Double-End Tenoner puts more unusual, time-consuming woodworking operations onto a *streamlined* production basis.

Serpentine edges, hex corners, round corners and various other irregular shapes, such as typical examples shown at right, become a matter of simple, swift *automatic* processing. Operated by an exclusive cam arrangement the new GREENLEE Irregular Shaping Attachment does work precisely, smoothly, speedily.

And to let you quickly "tailor make" cams in your own plant for faithfully producing various shapes of *your own designs,* the GREENLEE is equipped with an easily operated cam-cutting unit.

Now, more than ever, the GREENLEE Double-End Tenoner is "a woodworking plant in itself". For these shaping operations are in *addition* to the many others normally performed by this multi-purpose machine. Write for bulletin. Greenlee Bros. & Co., 1869 Twentieth Avenue, Rockford, Ill.



TOOLS FOR CRAFTSMEN

GREENLEE

GREENLEE WOODWORKING MACHINERY • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

CABINET SURFACERS

BUSS

features

THAT PROVIDE

Finer Finished Planing

BUSS No. 44 SINGLE SURFACE CABINET PLANER

GREATER PRODUCTIVITY!

Buss Planers thrive on comparison, for thorough comparison discloses the fact that these machines not only have all the worthwhile features of conventional cabinet planers, but many exclusive features that assure closer tolerance, greater productivity with the finest of finished planing. For instance:

FOR MORE ACCURATE BED-SETTING — A micrometer dial with .001" graduations.

FOR GREATER ACCURACY IN GRINDING AND JOINTING KNIVES — Micrometer Down-feed adjustment.

TO PREVENT SHAVING-PRINTING and damage caused by knots — the Shearing Bar.

FOR GREATER STABILITY — more weight, type for type and size for size than any other planers . . . a highly important factor in precision planing and even more important when machines of this kind are put into high production conveyorized installations.

FOR SUSTAINED ACCURACY and long wear — Chromium-plated beds and pressure bars.

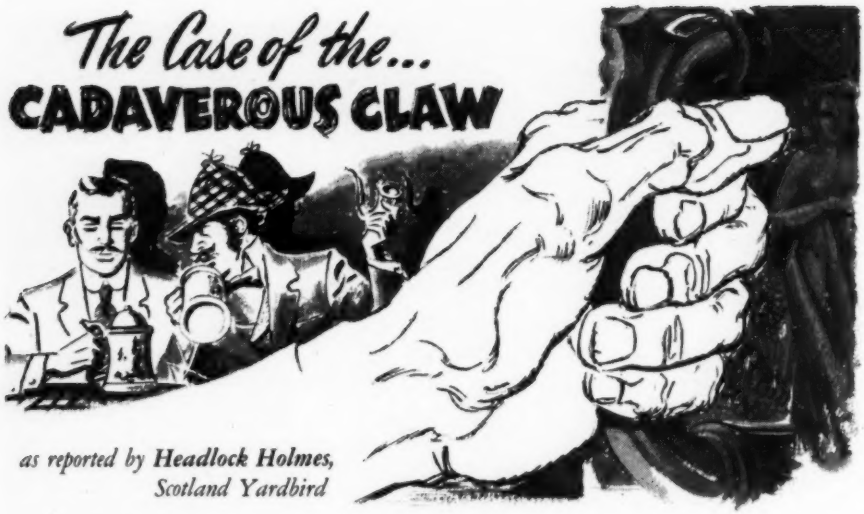
FOR GREATER PRODUCTIVITY — Instant, micrometer adjustment of lower rolls and pressure bar . . . reducing to seconds otherwise long and tedious adjustments.

Get the complete facts before buying any cabinet surfacer. There's a type and size to suit your requirements. Singles — small, medium and large; Double Surface type and the No. 55 for planing rough lumber. Bulletins on request.

BUSS
MACHINE WORKS

234 EIGHTH ST., HOLLAND, MICHIGAN

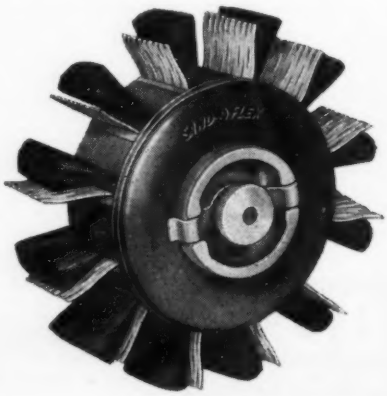
The Case of the... CADAVEROUS CLAW



as reported by ***Headlock Holmes,***
Scotland Yardbird

"INCREDIBLE as it may sound, while 'The Needle' and I were dining in a Picadilly pub, I suddenly noticed a hideous cadaverous claw clutching a tankard of Porter at a table across the room. I pointed out (much to the Needle's amazement) that the gnarled knuckles, the hunched-over fingers and the death-like grip belonged to a chap who sands parts by hand and, if continued, those poor claws would not even be suitable for scratching the backs of the Hounds of the Baskervilles."

As Headlock observes, hand sanding is tedious and blood-curdling. With Sand-O-Flex contour sanders, the jobs formerly done by hand are now performed successfully at top speeds. Brushes cushion the abrasive which feeds out from a central magazine and mold it to the work shape with a paint-brush action, producing smooth, uniform finishes. Sanders come in four models, abrasives in many grits. Write for catalog and prices, today. See your dealer. Merit Products, Inc., 4023 Irving Place, Culver City, California.



More Footage From J&O Heads and Every Foot True to Pattern!

JONES & ORTH H-Type Cutter Heads allow perfect take-up for wear without change of cutting angle!

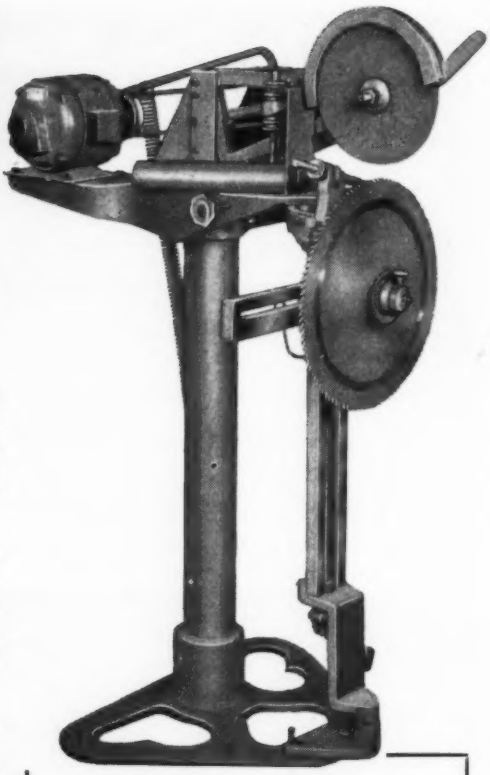
Long runs or short runs — you never have to apologize for variations from your patterns when you use JONES & ORTH H-Type Cutter Heads. Patented holder permits knife to be moved forward as it wears down, *with unchanged cutting angle.* Knives usable right down to the last fraction of an inch, with no change of pattern! *Quick service* on standard or special patterns! Ask your dealer, or write our nearest branch!

JONES & ORTH
CUTTER HEAD COMPANY
385 SOUTH MAIN STREET
MEMPHIS 3, TENN.
BOX 3064
SEATTLE 14, WASH.

HANCHETT

NO. 136

Hand Gummer and Sharpener for Rip and Cross-Cut Circular Saws



Keep your saws in keen cutting condition for faster, more accurate work! The Hanchett No. 136 grinds all types of rip and cross-cut circular saws from 6" to 36" diameters.

It pays off in action on a wide variety of jobs—gumming, sharpening, jointing. That's why it earns its way in small mills, pattern shops, woodworking plants everywhere.

These Hanchett features give you operating speed and accuracy:

1. STRAIGHT LINE HEAD ACTION—For accurate control of grinding head movement.
2. ADJUSTABLE HEAD AND TOOTH STOPS—Insure proper tooth spacing for precision sharpening.
3. SELF CENTERING SAW HOLDER—Saw swivels easily even under dirty, gummy conditions.

Write Dept. WWD-90 for details

$265.00 Belt or Motor Drive

Optional, either large or small saw attachment — $35.00 extra.

COVEL SAW SHARPENERS · HANCHETT KNIFE GRINDERS

HANCHETT MANUFACTURING COMPANY

WORLD'S LARGEST MANUFACTURERS OF SAW AND KNIFE GRINDING MACHINERY

Main Office BIG RAPIDS, MICH., West Coast Office PORTLAND, ORE.

Some Interesting Facts about the

WHITNEY
No. 105
SINGLE SURFACER

WHITNEY-BUILT — for accurate planing to fit your needs for a QUALITY Planer of medium capacity

●

24" wide—*Planes 1/16" to 7" thick—Feeds, 20 to 60 feet per minute—7½ or 10 HP Head Motor*

Send for bulletin giving full particulars.

THE WHITNEY No. 105 is designed and built to fill the need for a 24" single planer for accurate planing at lowest cost in furniture shops, cabinet shops, woodworking shops, schools, trade schools, institutions and maintenance departments.

Here are the facts . . . .

a 24" planer that takes up less floor space (5 feet square). Economical to operate. Has the quality features and careful workmanship that mean fine planing thru the years. Wedge raising bed construction with long inclines for continuous support of the bed, to maintain life-long accuracy. One-piece, cast frame for added rigidity. Quick, easy access to all moving parts. Gear works simplified, totally enclosed. Whitney standard knife grinder.

BAXTER D. WHITNEY & SON, INC.

BUILDERS OF FINE PLANERS FOR MORE THAN 100 YEARS

PLANERS • SHAPERS • VARIETY SAWS • MORTISERS • BACK KNIFE LATHES

WINCHENDON, MASSACHUSETTS, U. S. A.

WOOD-LOK®
a proven production tool

COLD GLUE ENDS HUMIDITY SLOWDOWNS

WOOD-LOK is a cold, always ready-for-use resin glue. Its fast setting speed, strong, resilient bond are unaffected by varying humidity conditions. Shop windows can be kept open . . . steam coils and glue heaters turned off . . . and a healthy ventilation can be maintained to keep workers on the job.

If high humidity and hot glue are slowing down your summer production schedules, we'd like to demonstrate WOOD-LOK right in your plant.

® (Patent applied for.)

WOOD-LOK right in your plant.

® (Patent applied for.)

COOLER
WORKING
CONDITIONS

•

FASTER
SETTING
SPEEDS

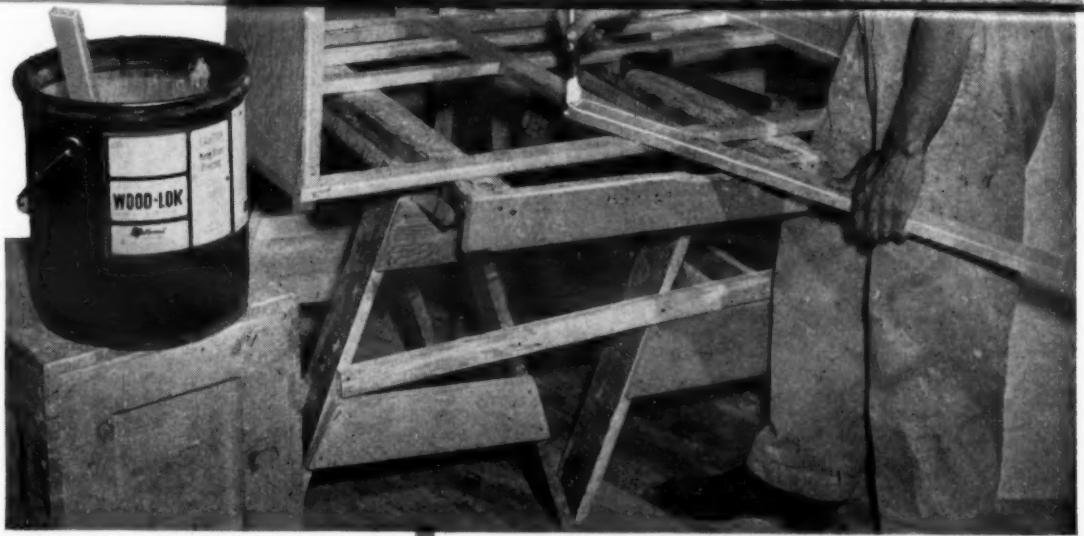


Photo Courtesy of BAVINCO MANUFACTURING CO., Buffalo, N. Y.

Address: 270 Madison Ave., NEW YORK 16; 3641 So. Washtenaw Ave., CHICAGO 32; 735 Battery St., SAN FRANCISCO 11; and other principal cities. In CANADA: National Adhesives (Canada) Ltd., TORONTO and MONTREAL. In ENGLAND: National Adhesives, Ltd., SLOUGH.

National
ADHESIVES

OK! SHOW ME how we can beat the humidity with National's WOOD-LOK. ☐ Have a representative call on_____
☐ Send a free sample.

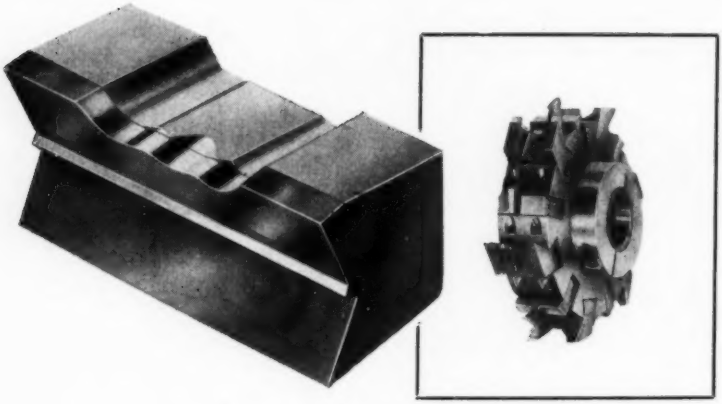
Mr._____

Company_____

Address_____

City_____ Zone____ State_____

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE



MARCOLOY CARBIDE KNIVES

will increase production, cut costs on

TELEVISION CABINETS

Carbide knives are a "natural" for television cabinets—especially for long runs.

You will get better work too, particularly on forms. Since all sharpening is on the face of Marcoloy knives (never on the clearance side), the form stays true for the life of the tool.

You can save sharpening time, increase production, cut "down time" on your machines with Marcoloy Carbide Knives.

These long-lasting Marcoloy Carbide Knives frequently enable you to step up your rate of feed on a machine. This gives you more production.

In the long run—when maintenance costs are figured—carbide knives usually cost less than any other kind.

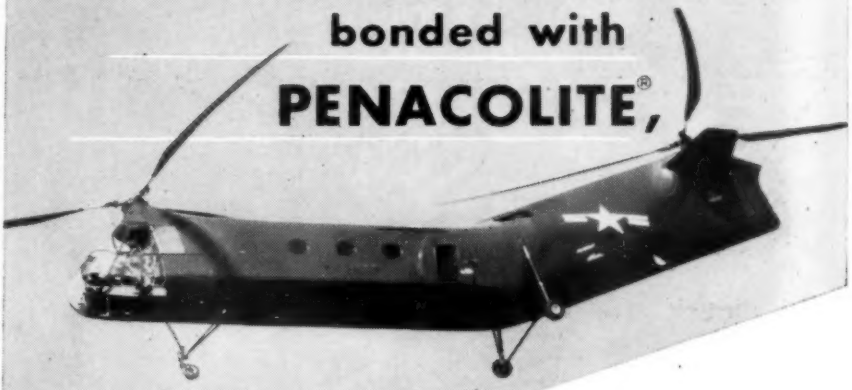
Marcoloy Carbide Knives are precision-made and are engineered for your machine and your job.

You may have our recommendations on any application without charge or obligation. Send us a sample or print and machine specifications.

MARCOLOY CARBIDES

GET IN TOUCH WITH MARCOLOY, INC. SPRINGDALE, CONN.

Laminated-wood rotor blades, bonded with PENACOLITE®, pass supersonic speed tests!



This is the Navy's new Piasecki HRP-2 helicopter, the streamlined "Flying Banana," manufactured by Piasecki Helicopter Corporation. The rotor blades of this ship, and of the Navy's HRP-1 and HUP-1 helicopters as well, are *permanently* bonded with Penacolite Resorcinol Adhesives.

DESTRUCTIVE whirl tests of helicopter rotor blades designed and constructed by the Piasecki Helicopter Corporation of Morton, Pa., proved that these Penacolite bonded blades could withstand speeds greater than the speed of sound. In the tests, made at the USAF's Air Materiel Command, Wright Field, the Piasecki Helicopter blades went to Mach number 1.05 at 640 rpm—490% greater than actual flight loads!

This is just one example of the strenuous jobs performed by durable Penacolite Adhesives. In *all* wood bonding, Penacolite Adhesives form bonds that are stronger than the wood itself! Penacolite bonds are permanent . . . will not deteriorate with age. They are unaffected by fresh or salt water, by molds, fungi, organic solvents, most acids. They will withstand all weather conditions in which wood is serviceable.

And Penacolite cures at room temperatures (70°F. to 90°F.), without the aid of strong catalysts. Pressures as low as 25 p.s.i. are often sufficient.

Let Koppers help solve *your* wood-bonding problems. For further information about Penacolite, write for our free booklet.

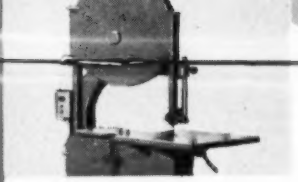
KOPPERS

KOPPERS COMPANY, INC.
Chemical Division, Dept. WWD-9, Koppers Building, Pittsburgh 19, Pa.

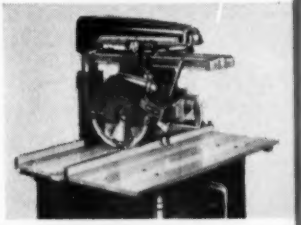
PENACOLITE RESORCINOL ADHESIVES

For scroll work, you want a saw that cuts fast

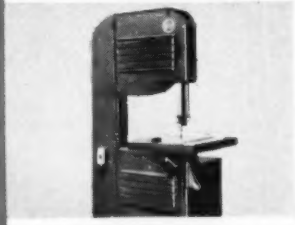
Multiplex Radial Arm Saw - - - $405.00*



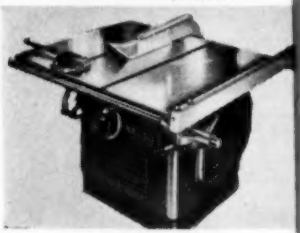
20" Band Saw - $340.00*

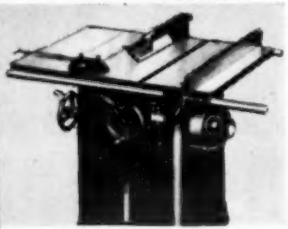


12" Tilting Arbor Saw - - - - - $795.00*



10" Tilting Arbor Saw - - - - - - - $234.00





Motor and switch extra in some cases. Prices subject to change without notice.

**Plus zone delivery charge*

3 Band Saws | 6 Circular Saws | Scroll Saw | 4 Jointers | 11 Drill Presses

Plus

53 Machines — 246 Models

And over 1300 accessories

For scroll work, you want a saw that cuts fast and smooth — and that's just what you get when you buy Delta. For Delta gives you extra quality every time — at surprisingly low cost. And this extra value is backed by complete selection — whether you want a band saw, circular saw, radial arm saw — or the scroll saw you see above.

Be *sure* you're right when you buy a saw — or any of the other wood- and metal-working machines that make Delta the most complete line available — the only line with complete accessories for every tool. Be *sure* by buying Delta every time.

Sold only through authorized dealers — available on easy time-payments. Look for the name of your Delta dealer under "Tools" in the classified section of your telephone directory.

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If You're Working in WOOD, METAL or PLASTICS

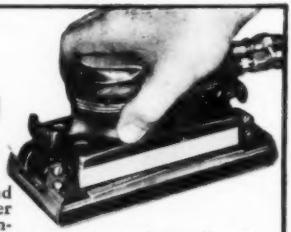
There's a* SUNDSTRAND *Portable Pneumatic Sander To Suit The Job

Here are three Sundstrand Sanders that will handle countless sanding jobs on wood, metal or plastics . . . on production or maintenance work. All three have straight line reciprocation, making it easy to follow grain structure and effecting superior finish. Vibration of all three sanders is reduced and operator's fatigue minimized.

Before buying any portable sander, investigate the savings possibilities of these Sundstrand Portable Pneumatic Sanders.

FREE DATA

Investigate the savings possibilities of Sundstrand Portable Pneumatic Sanders. Write for bulletin W-57.

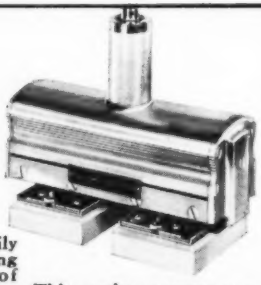


Single Pad
Model 100

A new Sundstrand Single Pad Sander which can be handled easily by women operators or in small and confining areas. Has straight line variable pad reciprocation ranging from 1,500 to 3,000 oscillations per minute. Pad movement is counterbalanced to eliminate vibration. Can be guided with practically no effort.

Double Pad
Model 1000 and Model 4000

Here's a light, fast, easy to handle two pad sander, ideal for wood, metal, plastic or composition. Pads reciprocate in opposed directions at 3,000 oscillations per minute . . . has abrasive area two to three times larger than hand blocks. Operates on 65 to 90 lbs. air pressure . . . applicable to both wet or dry sanding. Model 1000 weighs less than 6 lbs. and has stroke length of 1/2 inch. Model 4000 has 11/16" stroke and weighs approximately 9 lbs.



Heavy Duty Model

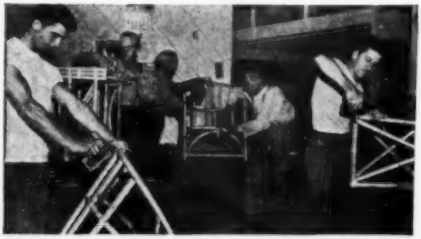
Designed primarily for pumice rubbing and sanding of large, flat surfaces. This sander operates at a speed of 1,100 oscillations per minute on an air pressure of 80 lbs. The machine weight of approximately 30 lbs. supplies necessary pressure for fast, uniform sanding or rubbing.

SUNDSTRAND MACHINE TOOL CO.
PNEUMATIC MACHINE DIVISION
ROCKFORD, ILLINOIS, U.S.A.

Production-Line Methods Speed Up Furniture and Woodworking Operations

Attaching aluminum weather strips to both sides of window jamb in 8 seconds is the amazing achievement of this sash and door manufacturer. Bostitch H-15 Wire Stitcher replaced hand tacking to cut costs 25% and improve product's looks.

"Twice as fast at half the cost," reported this couch manufacturer when Bostitch H2 Stapling Hammers replaced tacking for attaching burlap box spring cover and outer cover to wood frames.



"45% savings in labor and material" when this maker of tropical furniture used Bostitch T5 Tackers and staples to replace hammers and round head brass tacks on 90% of the work of fastening decorative plastic "peel" to joints.

INVESTIGATE BOSTITCH

In hundreds of furniture and woodworking applications, Bostitch hammers, tackers and other stapling machines are now cutting costs while doing fastening jobs better and faster. Maybe you could use these faster, better methods on these very jobs. The Bostitch field man near you (275 in all in 112 key cities in the U. S. and 11 key cities in Canada) is ready to give you the benefit of Bostitch's 50 years' fastening experience. In the meanwhile, use this coupon for latest news about Bostitch methods.

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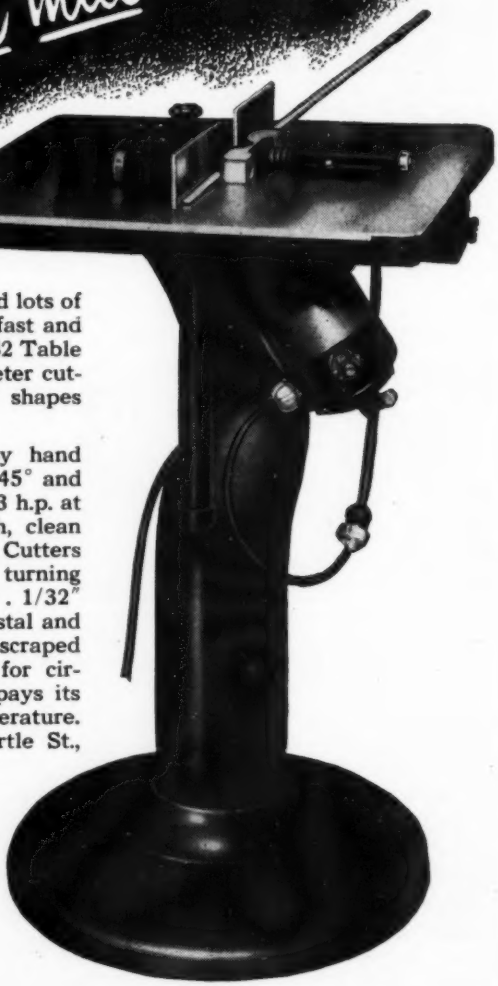
ALL TYPES OF STAPLES APPLIED BY MACHINES

Trade-Mark "Bostitch" Registered U. S. Patent Office and Foreign Countries.

Special jobs at "run of the mill" cost



Special shapes, small run jobs, and lots of miscellaneous work are handled fast and profitably on this Stanley-Carter S2 Table Shaper. Saves cost of large diameter cutters, multiplies the variety of shapes made with each cutter.

Tilting holder quickly set by hand wheel to any angle backward to 45° and forward to 15°. Universal motor, 3 h.p. at 15,000 r.p.m., gives fast, smooth, clean work that needs no extra finishing. Cutters raised or lowered easily by turning threaded ring on motor casing . . . 1/32" for each quarter turn. Base, pedestal and table of heavy cast iron, table scraped and flaked, drilled and tapped for circular or straight guide. The S2 pays its way every day. Write for literature. Stanley Electric Tools, 542 Myrtle St., New Britain, Connecticut.

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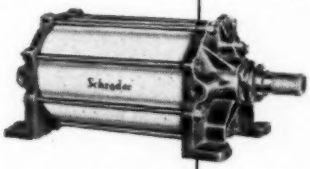
LET MUSCLES OF AIR DO IT...

...FASTER ..BETTER ..SAFER

The use of compressed air for woodworking operations is comparatively new yet substantial improvements and savings have already been made with air on the job.

Among the most useful aids for the woodworker are the new Schrader Air Cylinders. Schrader Air Cylinders are ideal for clamping work that is glued, or holding work that is to be drilled, mortised, sawed, dadoed, etc. Pressure is constant, doesn't relax as glue sets, and can be applied or released slowly or in a second! Schrader Air Cylinders can also be applied to many feeding operations—for example, to drilling, dovetailing, pulling the blade on a swing saw. Remote control keeps fingers out of the way.

SINGLE ACTING AIR CYLINDERS
Pull or Push Types. Use power on one side only. Save air. Operated by less expensive valves.



DOUBLE ACTING AIR CYLINDERS
Power to push or pull. All types of mountings. 1" to 8" bores. Any stroke.

AIR CLAMPS will do any clamping job better and quicker. Powerful Bantam Size Air Clamps. Available in 1", 2¼", 3" bores. 1" and 2" strokes in 2 types of mountings.

VALVES FOR EVERY OPERATING PURPOSE

Here is a handful of the dozens of Schrader valves available for hand, foot or remote operation of air cylinders. See the complete line in the big new catalog.

Send for NEW 72-Page Schrader Catalog contains hundreds of illustrations, suggestions and air products.

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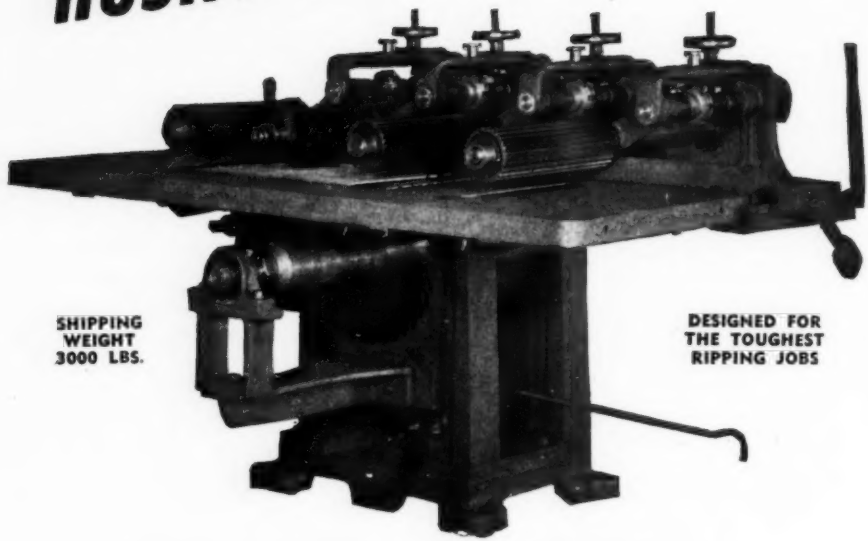
A REAL HUSKY. . .

NO. 213 HOOSIER SELF FEED RIP SAW



SHIPPING WEIGHT 3000 LBS.

DESIGNED FOR THE TOUGHEST RIPPING JOBS

FOR QUICK OPERATION - DEPENDABLE PERFORMANCE

This sturdy unit is designed specifically for high speed ripping of stock longer than 24″ and as a gang ripper for stock as short as 12″. The No. 213 is equipped with a stationary table top having all feed works brackets bolted to the top—as is the gear reduction drive. The mandrel rides on ball bearings and is raised and lowered quickly by a hydraulic cylinder. Eight driven rolls feed the stock through the saw at high speed. A 50 H. P. motor drives this unit at full capacity. The No. 213 is a real workhorse, built to handle your toughest jobs.

Available for direct motor, V belt or flat belt drive.

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National Casein's No. 750 liquid resin glue is ideally suited for shipment and storage in bulk or drums . . . 65% solids . . . four months' storage . . . strong, waterproof bonds . . . can be used for hot press, cold press, or high frequency work. Why not submit your requirements to your National Casein man?

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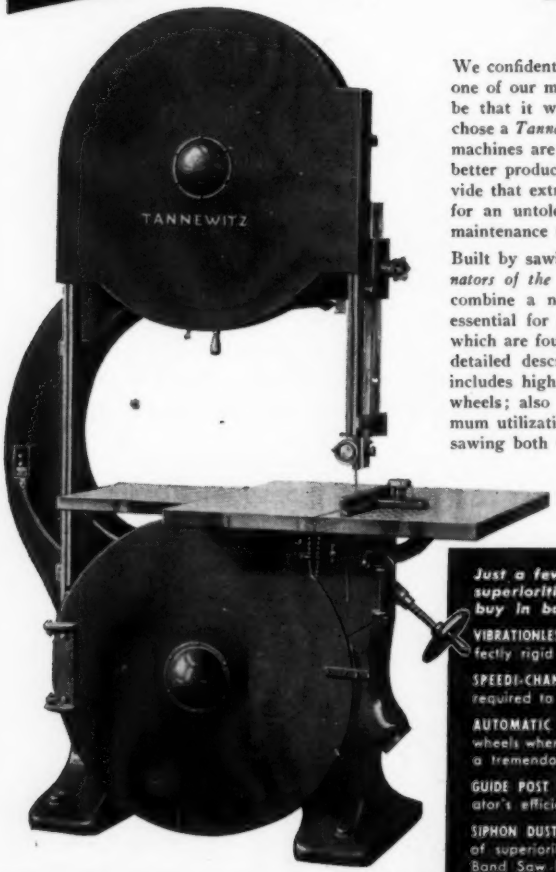
Tannewitz

YOUR "LUCKY STRIKE" IN HIGH SPEED BAND SAWS



We confidently predict that the longer you operate one of our machines, the more convinced you will be that it was, indeed, a lucky strike when you chose a *Tannewitz* High Speed Band Saw. For these machines are built not only to give you more and better production right from the start, but to provide that extra margin of cost-cutting performance for an untold number of years with little or no maintenance expense.

Built by sawing machinery specialists — *the originators of the high speed band saw* — our machines combine a number of exclusive features, highly essential for high speed band sawing at its best, which are found in no other band saws. Write for detailed descriptive literature. The complete line includes high speed band saws with *30", 36", 42"* wheels; also variable speed band saws for maximum utilization of the "skip-tooth" blades and for sawing both wood and metal.

Just a few of the numerous structural superiorities that make Tannewitz the best buy in band saws

VIBRATIONLESS DISC STEEL WHEELS — light, but perfectly rigid — cannot be deflected.

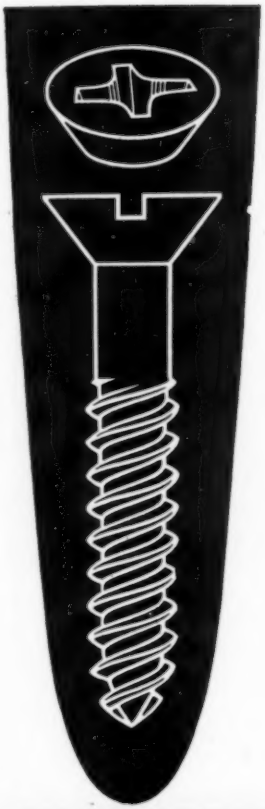
SPEEDI-CHANGE RUBBER TIRES — no bolts or nuts required to hold them in perfect alignment.

AUTOMATIC TWO-WHEEL BRAKES instantly stops wheels when current is shut off or blade breaks — a tremendous safety feature.

GUIDE POST GEARED AND BALANCED steps up operator's efficiency.

SIPHON DUST DISCHARGE and many other features of superiority, all described in our High Speed Band Saw Bulletin — write for it.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN



When we were 94 years young...

Throughout our 100 years of specialization in fastenings, we have constantly broadened our service to wood-working and metal-working industries. Only six years ago, Blake & Johnson introduced the revolutionary Twin-Fast twin thread wood screw with four new, patented features to assure tighter fastening—save assembly time and costs. Today, Twin-Fast is not only a standard part of the complete Blake & Johnson fastening line but it is accepted everywhere as the "standard" in wood screws. Twin-Fast screws are now available with Phillips recessed heads as well as with standard slotted heads, in steel or brass, and in all standard sizes and finishes; specials in stock or on order.

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Fastenings

Slotted or Phillips head machine screws, wood screws, stove bolts, tapping screws, special headed products; nuts, rivets, chaplets, wire forms, screw machine products... in steel, stainless steel, copper, brass, bronze, everdur, nickel, nickel silver, monel, aluminum..

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Please send me your new catalog containing full data on the complete line of Blake & Johnson fastenings.

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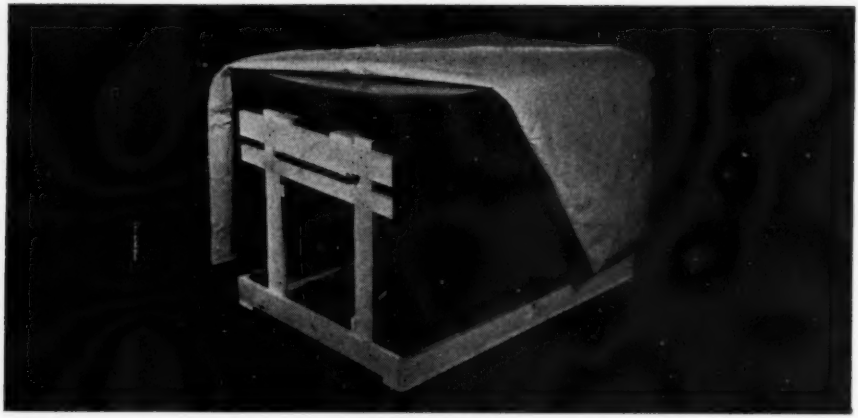

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Youngsville, Pennsylvania

JIFFY MACERATED PADS & BLANKETS meet all requirements of "non-abrasive padding material" as required by the Consolidated Freight Classification.

The above illustrations show JIFFY PADS and BLANKETS being used for protecting furniture under the specified method of packing.

In addition to protecting the finished furniture surfaces, JIFFY PADS and BLANKETS provide the proper cushioning and protection, so necessary to insure safe delivery to destination.

Our Trained Packaging Engineers will be glad to assist you at your request. Write for full information.

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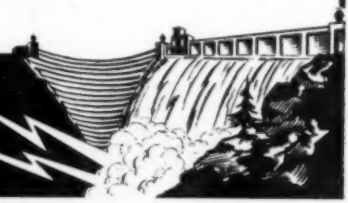

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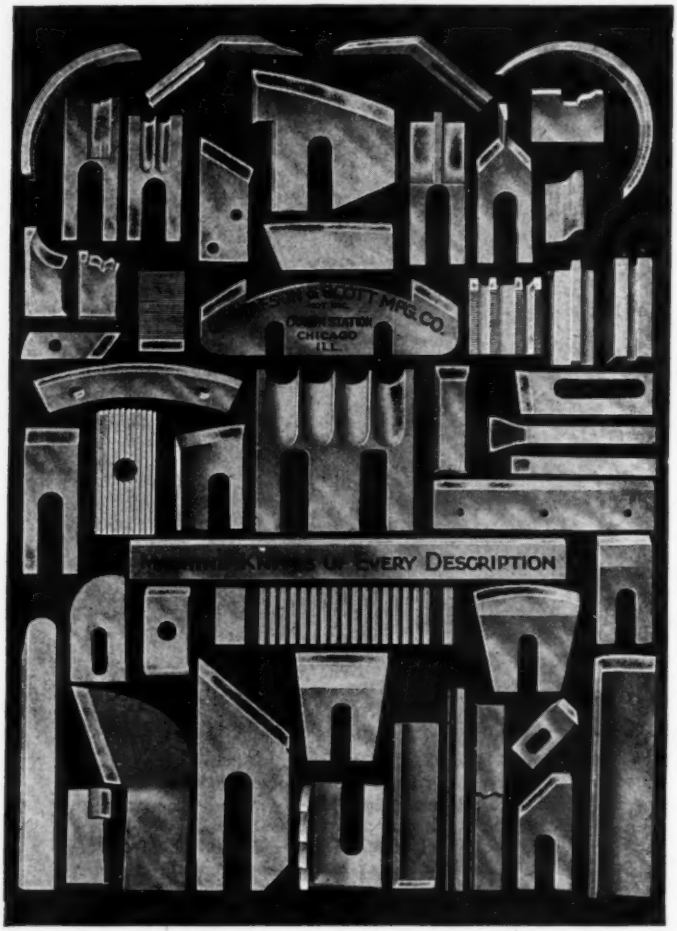

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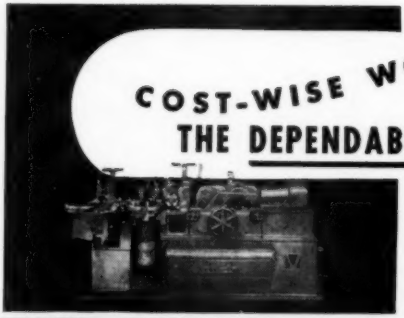
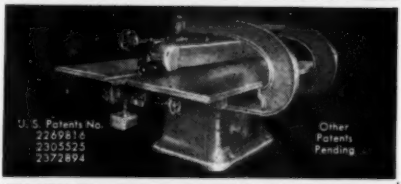
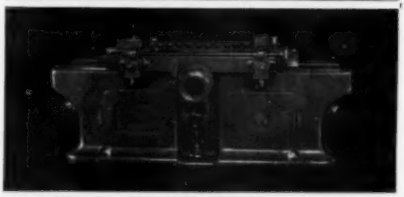
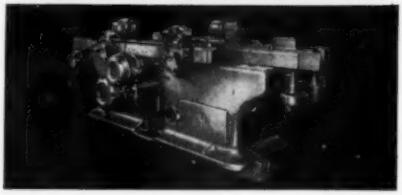








If you make

veneer . . . plywood . . . mouldings

fine furniture . . . dimension

Call in your Diehl representative for facts and figures on the savings made with these and other Diehl woodworking machines. Ask him for specifications on the machines to fit your requirements—or write the factory.

Diehl-Vonnegut Moulder (upper left) — This is the famous 6" and 8", 4-head all-purpose Diehl-Vonnegut, with the vibrationless, trouble-free spindle, found only in Diehl-Vonnegut Moulders. Other sizes range up to 12", both four- and five-head models.

No. 750 Rip Saw — The unequaled rip saw for precision cutting and sawing of open end or hollow glue joints at up to 250 feet per minute. Handles stock from ⅛" up to 4¼", any length. Companion models include the Model 55, and the Junior size, Model 33.

No. 890 Tapeless Veneer Splicer — This fast, economical method of edge joining veneers, without the use of tape, in a neat, invisible splice, is an exclusive Diehl process. Little or no sanding necessary. Speeds up to 85′ per minute.

No. 660 Jointer and Edge Moulder — A double-purpose machine, with only a few minutes change-over required from cutting glue joints to cutting edge mouldings. Workmanship is unsurpassed. Speeds up to 100′ per minute.

No. 69 Veneer Jointer and Edge Gluer — Clean, sharp, straight joints permitting perfect splices, plus the application of glues in the same operation are yours with the G. M. Diehl Model No. 69. Precision accuracy up to 50′ a minute with mixed widths of veneer strip in bundles up to 2" thick.

Also: Edge Gluing Machines, Cutters and Cutterheads, Cutter Grinders, Cut-off Saws, Saw Sets, Glue Pots and Conveyors.

On the Banks of the Wabash

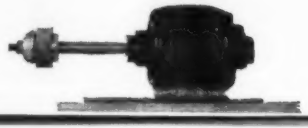
THE G. M. Diehl MACHINE WORKS, INC.

WABASH, INDIANA • U. S. A.

PEARSON *Versatile* MODEL A SANDER

America's FASTEST AND MOST EFFICIENT SANDER for IRREGULAR SHAPES

With BELT SANDER ATTACHMENT an ideal ALL-PURPOSE SANDER



SAVES ONE OR TWO OPERATIONS

MOTOR IN HORIZONTAL POSITION

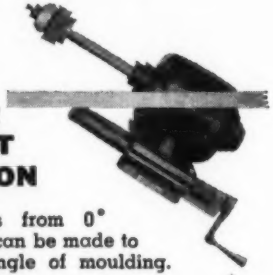
5 DAYS

By permitting motor shaft to tilt until sanding head angle perfectly fits

SAVES ONE OR TWO OPERATIONS

MOTOR IN HORIZONTAL POSITION

5½ inch head can be raised 2 inches above table level. Table can be lowered 2 inches to give 4 inch clearance.



MOTOR IN TILT POSITION

Tilt ranges from 0° to 90° and can be made to fit exact angle of moulding.

MOTOR IN VERTICAL POSITION

Motor can be raised 6 inches on motor base. Whole motor unit can be raised 9 inches additional, or 15 inches in all.

5 DAYS FREE TRIAL

We are so thoroughly convinced of the efficiency and economy of our machine that we do not hesitate to offer it for sale with the understanding that if it does not reduce your previous sanding costs sufficiently to justify the purchase of the machine, we will accept its return at no cost to you.

By permitting motor shaft to tilt until sanding head angle perfectly fits beveled moulding angle, this machine cuts and polishes one or more step-downs at the same time. Furthermore, the rubber cushions hold their shape many times longer than felt.

SAVES 60% TO 80% IN SANDCLOTH

For instance, one strip 1"x17" (17 sq. in.) on this machine will do more sanding and last longer than one square 8"x8" (64 sq. in.) cut into a disk, hole punched, slit and tucked into place around an old type cushion. The saving on sandcloth alone oftentimes pays the cost of a Pearson Model A.

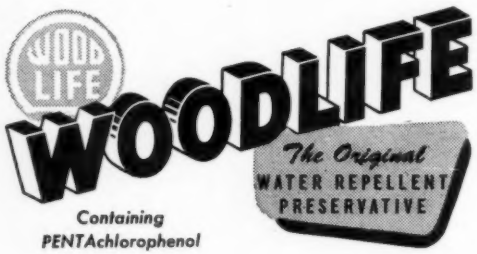
7 HEADS - 14 CUSHIONS

Are standard equipment with each machine. Length of cushion ranges from ¾ inch to 4 inches. Outside diameter ranges from 3¼ inches to 7 inches.

PEARSON SANDING MACHINE CO., INC.

HIGH POINT, N. C.

ALSO MANUFACTURERS OF WATERFALL BELT SANDERS, BLOCK AND EDGE SANDERS, AND GRILL SANDERS.



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WOODLIFE ***protects wood against:***

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WOODLIFE ***makes an excellent base for:***

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Protection Products Mfg. Co.

Mfrs of CHEMICAL PRESERVATIVES Since 1921

Research Laboratory and Plant *KALAMAZOO, MICH.*

"No hoarding here"

In a midwestern community red, white and blue stickers carrying this slogan are being given by food stores to their customers. Pasted in a door or window of each home, they may help put the brakes on the hoarding tendency and eliminate stories such as this one: It has been the habit of one man to buy 10 pounds of sugar each month. But last week he bought 100 pounds because he hates hoarders and doesn't want them to get his sugar.

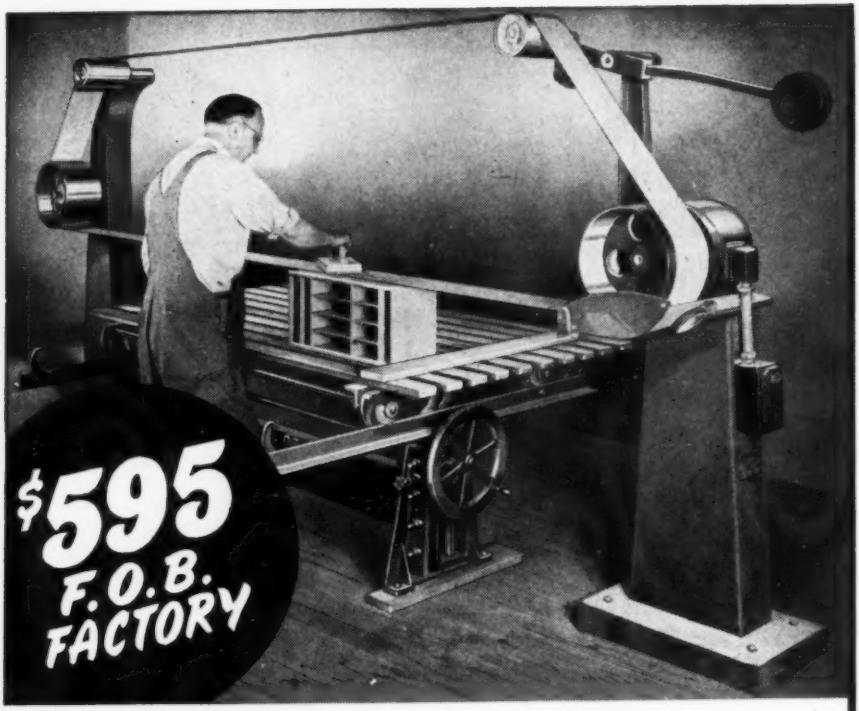
Advice is supposed to be easy to give and hard to take. However, in the present world situation it is hard to give. Hoarding—or call it any other name—is a dangerous measure, but it is just as disastrous to be caught with too little. It is hard for any citizen to understand why government hoarding of farm commodities is approved and individual hoarding is condemned. We don't propose to answer this question.

If we could get details from Washington as to what the production program is likely to be should the war continue, it would be helpful. Such information is not forthcoming and the refusal to give it is irritating, but we do know that most industry is in a better financial position than ever before.

Wars cannot be won without lumber and plenty of it. War necessities cannot be manufactured without a production setup guaranteed to give results. So if advice is to be given, we believe it must adhere to a conservative middle course. Do not overstock beyond your expected requirements, but do not let your stock-pile get low enough for you to be caught with orders and no material. The same thing goes for machinery. It is hardly necessary to keep several extra machines on hand, but it is foolish to give little thought to replacing a machine now living on borrowed time.

Let's use our own brains, commonsense and good judgment to be as well prepared as possible for whatever lies ahead. Remember that panic which leads to unreasonably big inventories or shrunken, inadequate stock-piles, helps the enemy play the game his way!

Ned Bailey
Editor-in-Chief



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Pointed Paragraphs

This may not be World War III, but it is a fair possibility that the Korean type of war will continue for some time to come. Consumer credit regulations will probably follow the passage of an Omnibus Bill introduced in Congress last July and up for passage late in August. Curbs on credit furniture purchases will probably follow the previous 10 and 15% down with 18 to 24 months to pay. Inventory controls of various types are now being explored by government agencies.

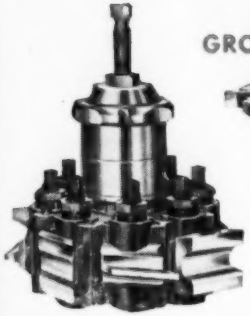
Let's quit kidding ourselves about socialism. People want security — you and I and everybody else, and medical protection too (notice the success of Blue Cross), and broader educational opportunities, guaranteed annual wages, adequate retirement pensions. All these things and many others point in the same direction — socialism. It's time we gave some thought, followed by action, to these straws in the wind.

Our woodworking industry, which is so dependent on the lumberman, will be glad to hear from our friend Dr. Emanuel Fritz, writing in a recent issue of "Fortune," that the private lumbermen are winning the battle of timber "now that there is money in forestry." He points out that the lumber industry has largely come around to the idea that it is good, sound business to treat their timber supply as a crop and to practice conservation for profit!

If you are interested, you should send in your reservation at once for the National Hardwood Lumber Association convention, Cincinnati, Ohio, Sept. 26-28. Write to the Cincinnati Convention Bureau, Chamber of Commerce, Cincinnati, Ohio.

(Continued on page 40)

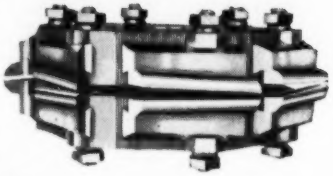
Put New Accuracy into your Sash and Door Operations

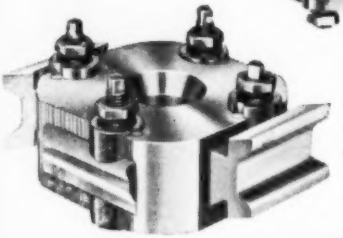


GROOVING DISC HEAD

DOOR HEAD CLOSED END

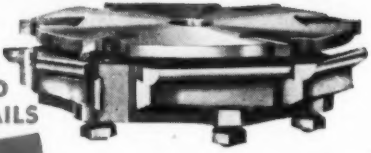
DOUBLE DOOR COPE





DOOR STICKING HEAD

DISC AND COPE HEAD FOR SASH RAILS



American 200 Series Cutterheads

with Yates-American 200 Series Cutterheads

Here's a brand new, precision-engineered line of cutterheads . . . "made to order" for sash and door manufacturers because they're capable of top-notch accuracy. Secret of the Yates-American design is the circular type bit clamp. It provides more positive clamping, more bits in a smaller cutting circle. In addition, micro-lateral adjustment permits pin-point bit tracking . . . your assurance that coping will fit sticking and that panels will fit panel grooves.

The 200 Series meets a long-existing industry need, offering woodworkers everywhere real production advantages —

STRONGER HEAD BODY — center portion of head body is unbroken — found in no other milled bit cutterhead.

POSITIVE BIT CLAMPING — prevents shifting, provides greater accuracy and safety.

MICRO-LATERAL ADJUSTMENT — for maximum setting accuracy.

MORE BITS IN SMALLER CUTTING CIRCLE — boosts production, improves accuracy and finish.

LONGER BIT LIFE — less length needed for positive clamping, gives up to 35 percent more bit life.

The 200 Series is a *complete* line of cutterheads—for any woodworking job. Write now for descriptive literature and detailed specifications.

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MATCHERS • BAND RESAWS • SANDERS • SURFACERS • CIRCULAR RIPSAWS

(Continued from page 37)

The Prefabricated Home Manufacturers Association reports that during the first 6 months this year there were 3 times as many "prefabs" built as there were in a like period last year.

C. E. Devlin, formerly with the Douglas Fir Plywood Association, currently general sales manager for Simpson Logging Company, Seattle, predicts a rosy future for softwood plywood. He sees a growing demand for this plywood in furniture, displays and signs, store fixtures, pallets, concrete forms, protective fencing, exterior siding, sub-flooring and railroad car construction. His reasoning, as usual, is very logical. You can read the complete article in this issue.

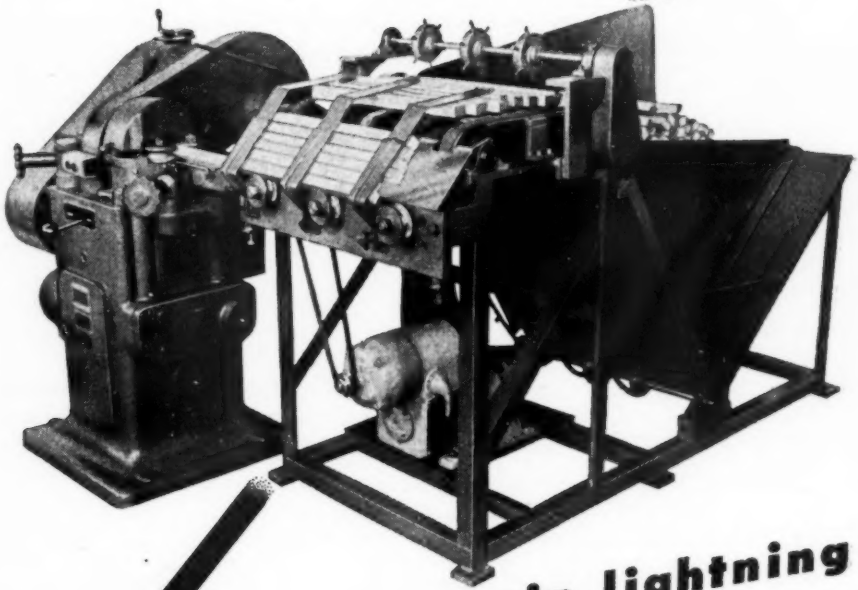
Sign of the times! Remember the dingy corner of the lumberyard that used to be called "the office"? It was complete with potbellied stove and cuspidors. This is true no more — read the other day of a lumber office in which the general decor was bleached mahogany plywood as a contrast to the platinum blond wall trim used for posts and counterfronts. Yes, times have changed — for the better!

Fred H. Lang, director of forestry and parks, Arkansas Resources and Development, announced recently that his state will again have Forest Festivals, some 19 of them throughout the state. These festivals are open to the public and feature many contests such as wood chopping, cross-cut sawing and similar woodcraft activities.

The lumber market is stronger than it has been for a long time. According to data from the National Lumber Manufacturers Association, shipments are slightly below and orders well above production, with unfilled orders amounting to better than 60% of stocks. Carloadings of forest products are more than 10,000 above last year.

Construction contract awards in the 37 states east of the Rockies in July set an all-time monthly record with a $1,420,181,000 total which was 5% higher than the previous all-time monthly record of $1,350,496,000 set in April, 1950. The Dodge Corporation states that July was 6% above June and 51% greater than July, 1949.

now you can make rounds



like chain lightning

. . . and cut costs to an absolute minimum!
The 1950 Hawker Rod and Dowel Machine with the brand new Hawker Automatic Hopper Feed (patents pending) really gives you high speed, fully automatic production—at rates up to 200 lineal feet per minute! Chains carry sticks from hopper to V-shaped feed rolls which drive stock continuously (end to end) into the dowel machine. Only a minimum of attention is required. Tests show the Hopper Feed Machine can pay for itself—in some cases—in 18 months. Write for literature and prices.

HAWKER

HAWKER MANUFACTURING CO. 1425 Keowee Street, Dayton 4, Ohio

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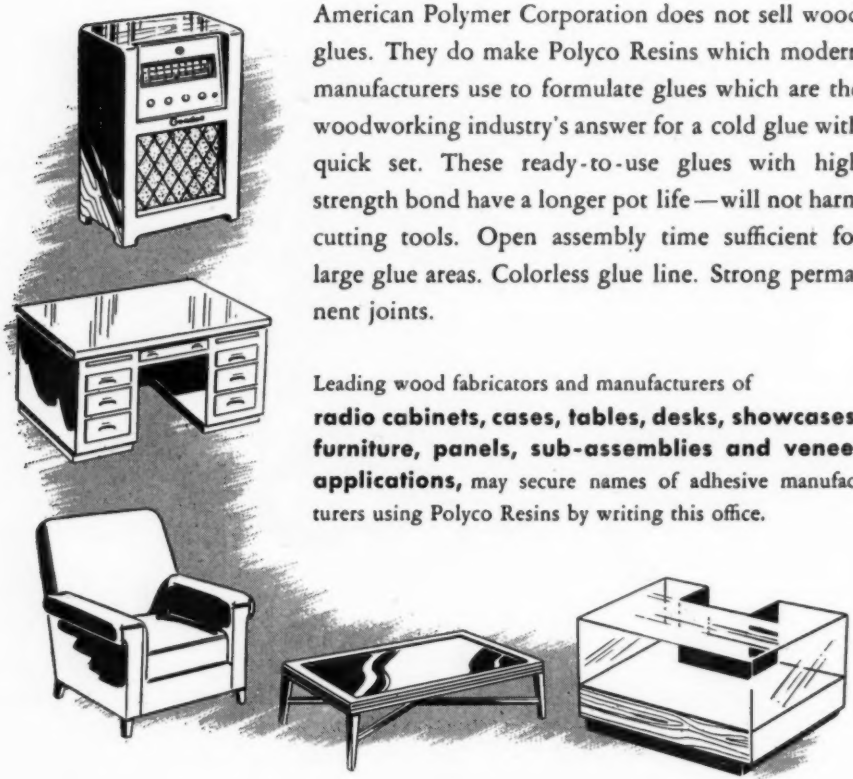

American Polymer Corporation does not sell wood glues. They do make Polyco Resins which modern manufacturers use to formulate glues which are the woodworking industry's answer for a cold glue with quick set. These ready-to-use glues with high strength bond have a longer pot life—will not harm cutting tools. Open assembly time sufficient for large glue areas. Colorless glue line. Strong permanent joints.

Leading wood fabricators and manufacturers of **radio cabinets, cases, tables, desks, showcases, furniture, panels, sub-assemblies and veneer applications,** may secure names of adhesive manufacturers using Polyco Resins by writing this office.

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General Offices: **103 Foster Street, Peabody, Massachusetts**

AUTOMATIC *lubrication of woodworking machinery*

By Francis A. Westbrook

CENTRAL LUBRICATING systems are now being installed on various types of woodworking machinery, frequently as standard built-in equipment. These applications cover all phases of the woodworking field from felling trees to nailing operations. The lubricating systems used on these machines range from simple "one-shot" systems for planers to automatic "fog" systems for door stickers and combinations of these two systems for routers.

Numerous instances of improved operation advantages resulting from the use of the central lubricating system are on record. Increased production output and decreased maintenance costs are only two of the advantages which are of definite importance to management in the woodworking industry. All the advantages assured by the use of a modern lubricating system can best be set forth by considering a few specific applications.

Perhaps the most simple application is that of the Bijur "one-shot" lubricating system on the one and two-man portable power chain saws manufactured by the Lombard Governor Corporation (Fig. 1). The small-capacity lubricator used here has a plunger which is pulled up by the operator when it is necessary to oil the machine. The operator is required to pull and release the plunger two or three times after five to ten cuts. This forces oil into the cutter bar from which it is fed to the chain through three grooves in the filler.

Not only is this "one-shot" lubricator a convenient and sure way of oiling this high-speed equipment; it is also a space-saving light-weight unit which fits neatly into the compact design of the saw and adds only 13 ounces to the weight. The saw manufacturer reports that it gives very satisfactory results, and has incorporated it as standard equipment.

A typical application of an extensive Bijur automatic lubricating system is shown on a Filer & Stowell four block

Fig. 1. One-man portable chain saw equipped with "one-shot" lubricator (center).

rack pinion sawmill carriage in the Weyerhauser Timber Company plant at Springfield, Oregon, where 82 bearings are automatically lubricated from one central point (Fig.2). The motor-driven lubricator, mounted on the frame, regularly force-feeds a measured amount of clean oil through a single line distribution system branched to deliver oil to all bearings where meter-units control the oil flow.

A high-pressure lubricator (Fig. 3) is employed for this job because of the large number of bearings requiring frequent lubrication. It contains a continuously operating gear pump whose oil feed is delivered, by means of a cam-operated valve, to the distribution system at pre-determined intervals. The cam contour determines the timing and duration of the oil feed which may be varied by changing the cam setting.

The distribution system consists of tubing running from the lubricator to junctions and from here to bearings in all parts of the machine. Flexible hose assemblies are used to deliver oil to parts of the machine moving relative to the main frame. At each bearing, there is a meter-unit (Fig. 4), a flow-control device consisting of three major components: a filter, a metering orifice which determines the amount of oil delivered to the bearing, and a check valve which opens under oil feed pressure to assure flow in one direction only. Different bearings are provided with meter-units having different flow rates according to the requirements of the individual bearing.

An automatically-lubricated machine oils itself during operation. No longer must a machine be shut down as a safety precaution so that each bearing may be oiled separately by hand. Automatic lubrication converts down-time for oiling into more time for production, a not inconsiderable factor

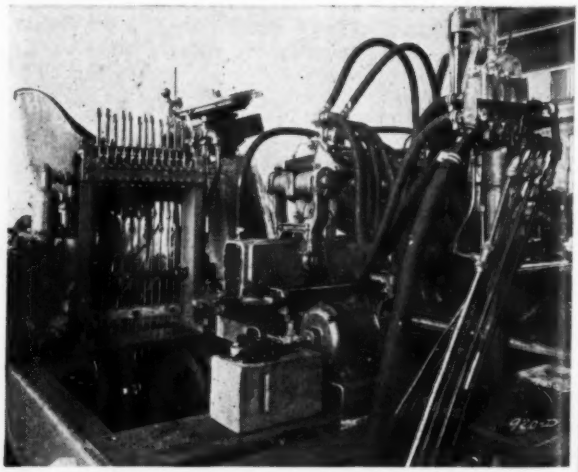


Fig. 2. Motor-driven automatic lubricator on sawmill carriage. Note distribution tubing delivering oil from lubricator to bearings directly above motor.

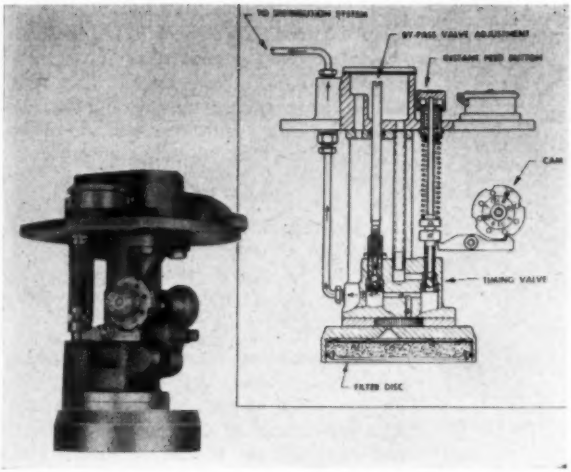


Fig. 3. High-pressure lubricator which automatically oils up to 100 bearings.

in these days of high manufacturing costs. Maintenance time is further reduced as correct oiling of all bearings by mechanical means is substituted for the erratic human element and its hit-and-miss oiling practices which result in frequent bearing break-downs.

A semi-automatic Bijur lubricating system is installed as standard equipment on the 6-foot horizontal resaw, manufactured by the Prescott Company (Fig. 5). This system consists of a "one-shot" lubricator which force-feeds oil through meter-units to oil the chain

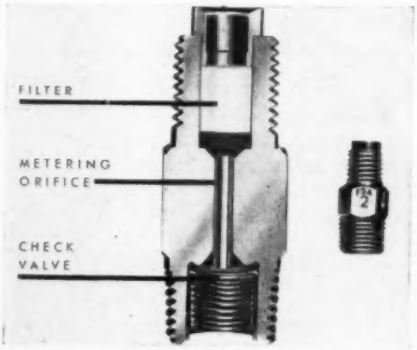


Fig. 4. Meter-unit located at each bearing to control amount of oil delivered to it.

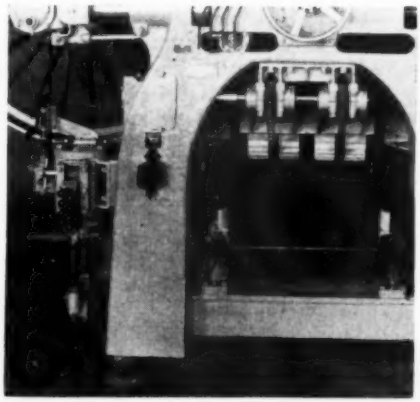


Fig. 5. "One-shot" lubricator, mounted on left leg of resaw frame, for oiling the chain.

bearings. The operator actuates the lever to start action; upon release of the lever, oil is distributed to all bearings automatically.

The resaw chain is of the finished roller type operating on an alloy steel chainway. In spite of the excellent quality of the chain, its life before using the semi-automatic lubricating system was only a few months due to the severe operating conditions.

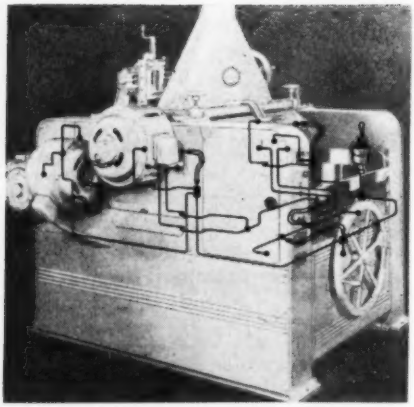


Fig. 6. Semi-automatic lubricating system built into a planer.

The resaw builder feels that modernized lubrication will substantially prolong the life of the chain, although definite data are not yet available.

Another application of the semi-automatic lubricating system is that of the Buss single surfacer planer (Fig. 6). In this installation, a "one-shot" lubricator oils 21 bearings of the machine. All components of the lubricating system are totally enclosed within the machine, including the lubricator which is reached through an access door. It is stated by the builder of this planer that the lubricating system is satisfactory; the company is enthusiastic about it and recommends it.

The "one-shot" lubricator used in the resaw and planer installations is specified for woodworking machines requiring closely controlled but infrequent oil feed. It is a simple unit, consisting of a spring-actuated pump set in a one or two-pint reservoir, depending upon the number of bearings to be served and the frequency of oiling. The type of handle used is determined by the location of the lubricator on the machine, a push-back handle being used on the resaw, planer and nailing machine, and a tee-handle on the router shown in Figure 13.

Three different types of woodworking machines are automatically lubricated by the C.K.L. Machinery Company. The lubricator of the gang stile borer oils 46 bearings, including bit carriage ways, feed slide ways, crank arm ways, crank arm link, etc., all practically completely enclosed within the machine (Fig. 7).

The lubricator used to oil the gang stile borer is a cyclic type, ratchet-driven by the machine (Fig. 8). It consists of a spring discharge piston pump operated by a cam which is driven by the machine. Other cyclic lubricators are designed for rotary drives from the machines they oil in cases where this arrangement is more convenient. A typical installation of a ratchet-driven cyclic lubricator is shown in Figure 9.

The C.K.L. motorized double trim

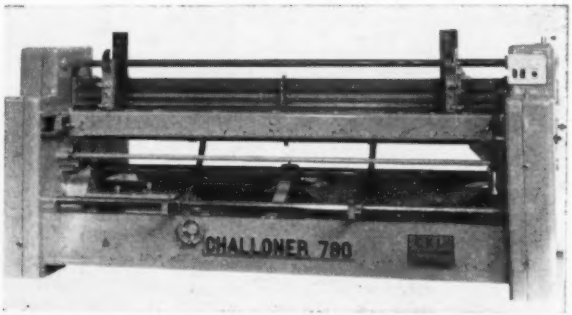


Fig. 7. Gang stile borer with built-in, enclosed automatic lubricating system.

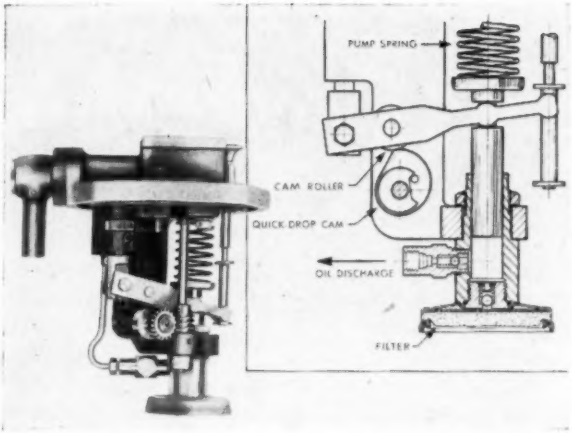


Fig. 8. Cyclic lubricator for oscillating drive; this type of lubricator may also be rotary-driven.

saw, tenoner, coper and multiple mortiser uses the cyclic lubricator to oil 37 bearings (Fig. 9). Meter-units control the oil flow at the drive shaft, drive chain, crank arm, clamp beam slide, beam slide and other bearings. An end view of the machine with the covers removed reveals a built-in lubricator and distribution tubing to junctions and thence to the bearings. Also evident are a hose assembly carrying oil to a moving part and the oscillating drive arm from the same moving part which actuates the lubricator. The fact that the cyclic lubricator may be operated by either an oscillating or rotary drive is a further illustration of the versatility of this lubricating system.

The third automatically-lubricated machine built by C.K.L. is the high-speed door and sash sticker (Fig. 10). The four SKF high precision bearings, operating at 9000 rpm, are automatically oiled by the newly developed Bijur circulating "fog" system, the lubricator

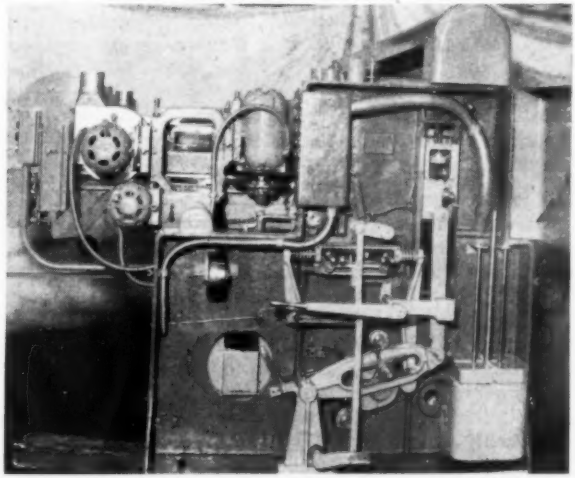


Fig. 9. End view with covers removed of motorized double trim saw, tenoner, coper and multiple mortiser, showing oscillating drive of cyclic lubricator (lower left circle) and distribution tubing to 37 bearings.

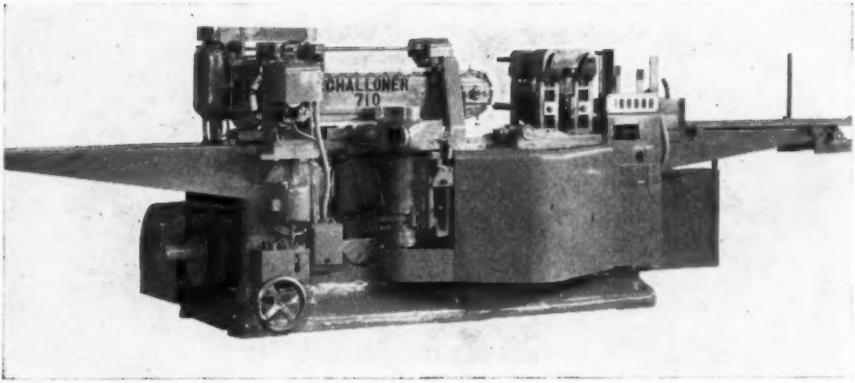


Fig. 10. Door and sash sticker with two 9000 r.p.m. spindles automatically lubricated by the new circulating "fog" system.

for which is located at the lower left front of the machine.

The "fog" lubricating system has been developed especially to make continuous high spindle speeds possible and has a wide field of application in the woodworking industry. The vertical motor-driven "fog" lubricator provides an oil-air dispersion containing microscopic droplets of oil in the following manner. Oil in the reservoir is broken up by the action of a venturi and impeller vanes. It is then delivered through a nozzle as a fine fog; this fog is conducted to the top spindle bearings and excess fog is returned from the lower spindle bearings to the reservoir where required make-up fog is added before re-circulation.

The Morgan Machine Company installs a semi-automatic lubricating system as standard equipment on the open-back nailing machine (Fig. 11). The steps by which the designers of this machine arrived at the decision to employ such a lubricating system are illuminating and doubtless more or less typical of many others. Customer reports indicated frequent bearing failures and it was felt at first that the bearing metal, mostly babbitt, was at fault. Estimates were then made on the cost of installing bronze bearings throughout on several sizes of machines. On a low volume basis this appeared to be prohibitive.

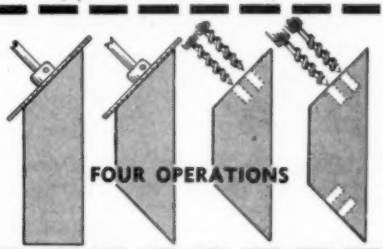
It was then decided to review the problem from the beginning and it was found that the first picture envisioned of it was entirely wrong. Bearing loads were calculated and found not to exceed safe working limits. It was learned, however, that most plants in which the nailing machines were installed were not organized for dependable daily lubrication services and that, at best, oiling was a hit-or-miss proposition.

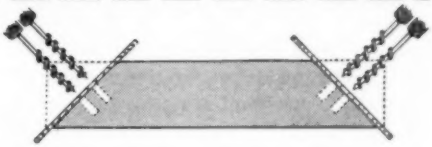
Consequently, a quick and easy method of lubrication was essential in order that the machines might give satisfactory performance and the semi-automatic lubricating system was adopted. This was several years ago and the machine builders say that, unless some unforeseen conditions arise, the present lubricating system has given such satisfaction that it will continue to be used.

In addition to providing for adequate lubrication, the central lubricating system is definitely a time saver. It

You know this method is obsolete

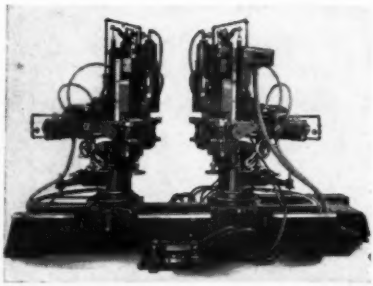
...but do you realize that this is obsolete also?





A BELL 24

does the job in just ONE operation!



Instead of sawing each end individually, and boring or chucking each end individually (4 separate operations), the Bell 24 performs all four in one 2½-second cycle —and with infallible accuracy! That's why you'll find so many Bell 24's in the cabinet-making shops of the biggest radio and television set makers. They are quick to adopt machines that can cut costs and turn out better work!

Write for detailed specifications.

BELL WOODWORKING MACHINERY

THE BELL MACHINE COMPANY
71 Jackson Drive
Oshkosh, Wisconsin

Fig. 11. Nailing machine equipped with semi-automatic lubricating system, all points being oiled by "one-shot" lubricator located on left side of machine, midway between top and bottom.

minimizes both maintenance and oiling time, and of course contributes to greater machine productivity. Central lubrication operating through a "closed" distribution system cuts down the fire and accident hazard as it allows no excess oil to drip out of the machine and soil the work, the operator, or the surrounding area.

An important practical feature of the lubricating system under discussion is its versatility whereby it may be adapted to various operating conditions. Such an adaption is found in the Wysong & Miles automatic dovetailing machine. This is a high-speed machine with 15 spindles operating at 6000 rpm. This is considerably higher than the spindle speeds used for dovetailing machines in the past and contributes materially to success in cutting cleaner and better finished dovetails. Output is stepped up from 35 to 85 per cent, depending on the character of the work. In this case, the use of the right lubricating system is particularly important for otherwise the high speed would not be practicable nor recommended.

The previous models of the dovetailing machine used the "one-shot" type of lubricator for oiling all moving parts other than the spindles which were oiled manually. The company's engineers then decided that automatic lubrication of the spindles would permit closer tolerances and greatly increased speed. To this end the spindle bearings are lubricated separately by a small capacity gear-driven pump which provides a constant total flow of oil of 50 cubic centimeters per minute at 100 rpm under high pressure while the machine is in operation. In this case there are no meter-units at the bearings as there is a continuous flow of oil and the oil pump is supplied from a seven-quart reservoir. In short, in this instance the lubricator consists of the gear-driven pump and the seven-quart reservoir.

The spindle unit, shown in Figure 12 with the front cover removed, is totally enclosed to keep out chips, shavings and other foreign material. All moving parts in this enclosed unit are continually sprayed with filtered oil under

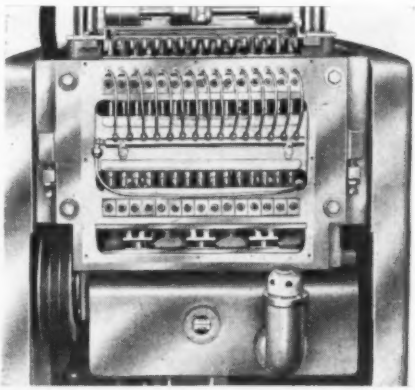


Fig. 12. Detail of automatic dovetailing machine, showing how each spindle bearing is automatically lubricated by a continuous oil stream.

Saddles or scoops any shape or size of chair seat.

McKNIGHT NO. 1-E

AUTOMATIC SADDLE SEAT MACHINE

SIX TO TEN SEATS PER MINUTE

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The McKnight No. 1-E Saddle Seat Machine cuts six, eight or ten seats per minute. It is the highest speed and most efficient saddle seat machine manufactured. Stock is carried from the hopper to the cutting head by a steel chain. Motor, 10 HP, 3600 R.P.M., ball bearing type. Cutting Head runs at 5000 R.P.M., is mounted in ball bearings. *Write for further details.*

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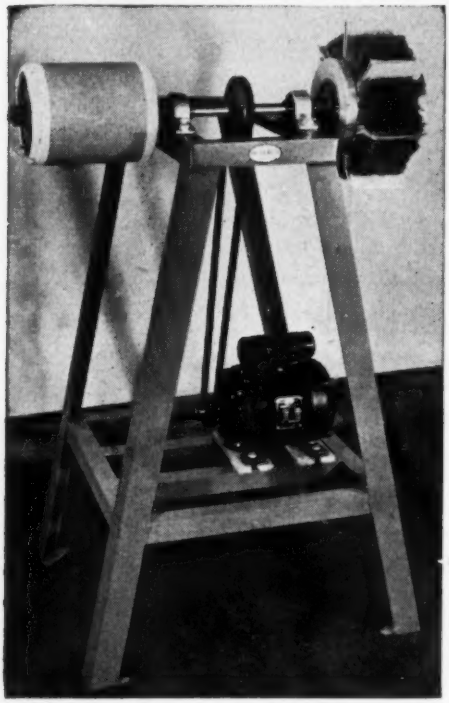

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pressure which is provided by the gear-driven pump. The enclosed spindle unit is very important because it prevents chips and other foreign matter from working into the spindles and causing them to jam. No manual lubrication of the fast moving parts is necessary and the only attention required is to fill the oil reservoir.

The Preston Woodworking Machinery Corporation of Canada furnishes both "fog" and "one-shot" lubricators on its router as optional equipment. That is, both lubricators are used on the same machine, as shown in Figure 13.

The two vertical high-speed spindle bearings are oiled by means of the "fog" lubricator, mounted inside the column. It is driven by a vertically-mounted ball bearing ¼ hp motor which must be started before the head drive motor for the machine can be started. Pressing the starter operates the lubricator motor, causing the lubricator to form a fog of lubricant which is distributed to the ball bearings in the head unit. A time delay switch, installed between the lubricator motor switch, and the head drive motor switch, insures that sufficient oil fog is circulated to the head unit before the main drive motor starts.

The "one-shot" lubricator oils 17 other bearings through meter-units; this includes all movable parts of the machine with the exception of the two fog-lubricated spindle bearings. This installation is one of the very latest developments in automatic lubrication, and is an example of how such a system is adaptable to almost any set of conditions likely to be found in the woodworking industry today.

In practically all cases, it is preferable to have the central lubricating system built into the machine while it is on the production line. Installation at the plant of a user involves stopping pro-

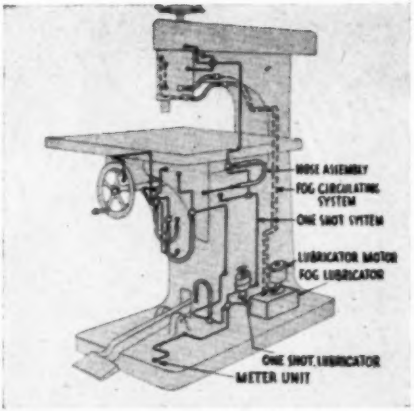

Fig. 13. Router with two lubricating systems on one machine. Solid line shows "one-shot" distribution system; "fog" system is represented by dotted line.

duction and partial disassembly to install all parts of the system to best advantage. All installation operations such as drilling and grooving bearings to accommodate meter-units, and enclosing the complete system within the machine for greater security and improved appearance can be achieved more economically by the manufacturer of the machine while the machine is being built.

The End

F. P. R. S. SECTIONAL MEETING

"Seasoning and Machining" is the topic for the 1950 meeting of the Virginia-Carolinas section of the Forest Products Research Society. The meeting will be held in Roanoke, Va., on November 3. The program will feature practical aspects, experiences and discussions of these important phases of manufacturing wood products.

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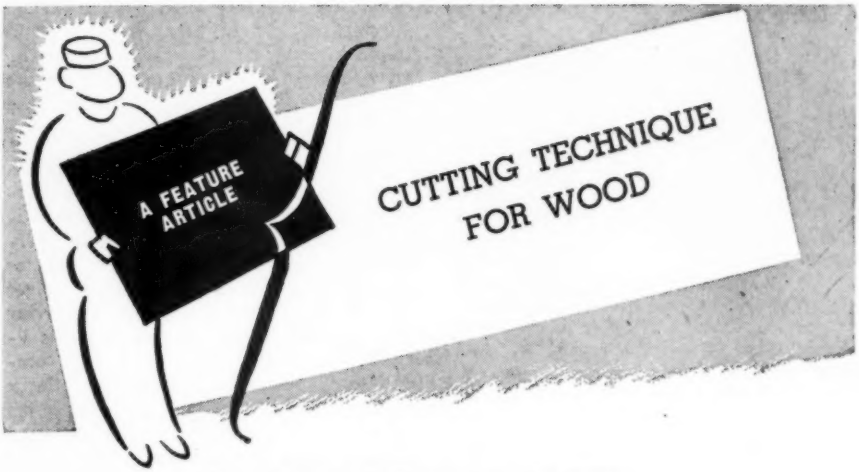


VI. Special Saws and Cutters

By Thomas D. Perry

THERE ARE several unique types of special cutting tools, such as cylinder saws, chain saws, chain mortisers, plug cutters, etc., that do not come within the standard classifications outlined in previous articles, but which are important adjuncts to the technique of cutting wood.

Cylinder Saws

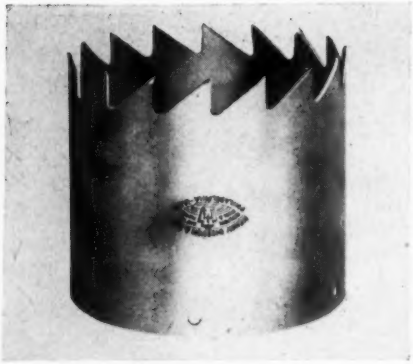
A cylinder saw is a tool steel cylinder, open at both ends, with saw cutting teeth on one end. As it revolves and cuts its way through a balk of wood, it produces sections of a cylinder, which can be used for drums, and also can be curved in the other direction to make staves for bilge shaped barrels and kegs. Such a cylinder is shown in Fig. 1, where it can be observed that the cutting end is equipped with large spring-set teeth, adapted to both cross cutting and ripping, since some of the wood fibres must be cut across squarely by the points, and other fibres must be separated from their neighbors, as in ripping. Such saw types are in limited use, but in their proper place are very useful.

Stave Saws

These saws, shown in Fig. 2, are "dished" like a spherical segment, with a compromise shape of rip-cross-cut tooth, spring-set, along the entire rim. Such tooth shapes were shown in the upper view of Fig. 4, Part II. The curvature of this saw permits the direct cutting of staves to bilge barrel shape. Again these special stave saws find limited, but important, use in cutting cooperage stock.

Chain Saws

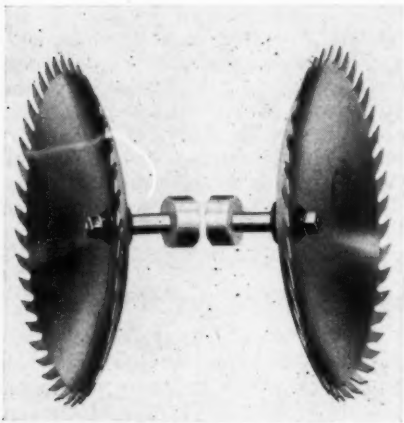
Chain saws, while not new, are coming to fill an important place in woods operations, where they are rapidly replacing the axe in felling and bucking timber. They consist of linked sprocket chains, with cutting projections on their outer periphery, driven by light weight,



Courtesy Henry Disston & Sons Co., Inc.
Fig. 1. Cylinder Saw, with teeth on one end.

but powerful, gasoline motors.

The larger two-man chain saws are available in sizes from 24" long up to 84", weighing from 98 lbs. to 130 lbs. net, and are equipped with a 12 H.P. motor. These big extra duty saws are suitable for heavy service in felling large trees. Smaller one-man sizes have 24" and 30" blades, and a one-man bow saw, 15", is adapted to cutting pulpwood, felled timber and removing



Courtesy Henry Disston & Sons Co., Inc.
Fig. 2. Stave (spherical) saws with teeth on rim.

branches. This bow saw, with a curved supporting rim, rather than a solid blade to carry the moving saw, has the advantage of avoiding cramping on the blade, when cutting small logs on the ground.

Each cutting projection or saw tooth, usually performs a single special function, and they are arranged in a standard sequence, with approximately alternate cutters and rakers, the former severing the fibres on the outer edges of the kerf, and the latter removing the surplus center material, as was illustrated in Fig. 4, Part II, for combination circular saw teeth. In a large two-man saw, as shown in Fig. 3, the sequence of chain saw teeth and non-cutting links is as follows:

(1) Non-cutting link	(7) Center raker
(2) Center raker	(8) Right outside cutter
(3) Right outside cutter	(9) Non-cutting link
(4) Left raker	(10) Right raker
(5) Left outside cutter	(11) Left outside cutter
(6) Non-cutting link	(12) Repeat sequence

Teeth are identified by looking at the cutting face; if the pitch is to the right, it is a right hand raker or right hand cutting tooth, etc. The center raking tooth is straight. The rakers all have projections downward that ride in the groove on the edge of the blade. The right and left hand outside cutting teeth are .015" higher than the right and left hand raker teeth, and these are, in turn, .015" higher than the center raker teeth. The cutting teeth have a top clearance angle of 9°, a 6° hook or front angle, a top bevel of 20°, and a 30° face bevel. The intermediate raker teeth also have standard shapes for most efficient cutting. These angle relationships can be modified, by an expert saw filer, to meet any conditions, soft-or hardwood, green or dry timber, etc., but the standard adopted must be maintained.

The smaller one-man chain saw, illustrated in Fig. 4, has a different type

Courtesy Henry Disston & Sons Co., Inc.
Fig. 3. Large extra duty chain saw for heavy cutting.

of chain, a straddle type, that is guided by the outer faces of the blade, rather than by a groove in the edge of this central supporting blade. Since this size of chain saw is intended for lighter service, there need not be as many raker teeth, although practice varies in this regard.

Still another shape of cutting tooth, type "O," is available in which the cutting tooth has a lip bent inward and serving as a chisel for raking purposes. A chain of this design has fewer cutting links, with a non-cutting link between each cutting link.

These various types of chain saws, while they are chiefly used for primary conversion in forest areas, are important enough in their mechanism to be included in this series of articles, which deals more particularly with factory machinery.

Where electric current is available, electric motors may be substituted for gasoline engines, which is in the interest of simplification and reduces fire hazards.

Chain saws are in the process of rapid development and have become very popular. It will not be surprising to find many new adaptations in the next few years.

Chain Mortisers

At first glance a chain mortiser may be said to resemble a chain saw, but such is not the case, since the details of construction and operation are quite different. The chain mortiser is used almost entirely for mortise slots in mortise and tenon joints, chiefly in doors and large framed panel units for partitions. It is intended for light duty, principally in soft dry woods, where mortise slots are of limited size, seldom more than ½" wide by 6" long by 5" deep. The minimum width is ¼". A typical mortise cutting chain, mounted for a slot ⅜" wide by 3" long by 4" deep is shown in Fig. 5. When the stile is wide enough for a deep mortise, the round bottom provides a simpler operating technique with a single return wheel. The tenon extends only to the start of the curve. It is to be noted that the tooth structure of the mortising chain is considerably simplified over that of the chain saw. Alternate right and left cutting teeth are provided, doing double duty in cutting the edges of the slot and raking out the surplus center material. These teeth have a chisel like point and only two shapes of toothed cutting links are required. The cutting chain straddles the guide rails on the supporting plate or tongue. While there may be some tearing of the wood, where the chain leaves the mortise slot, this can be protected by a clamp block, and such roughness can be concealed, when assembled, by the shoulder of the tenon.

Where longer mortise slots are required, the bottoms may be cut sub-

Courtesy Henry Disston & Sons Co., Inc.
Fig. 4. Small 18" one-man chain saw with straddle type chain.

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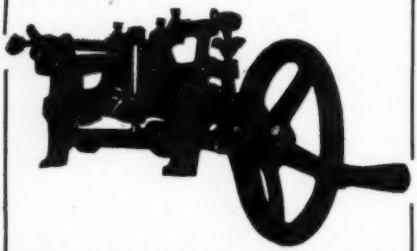

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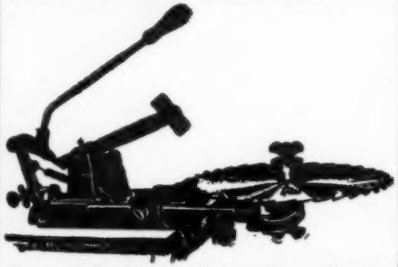

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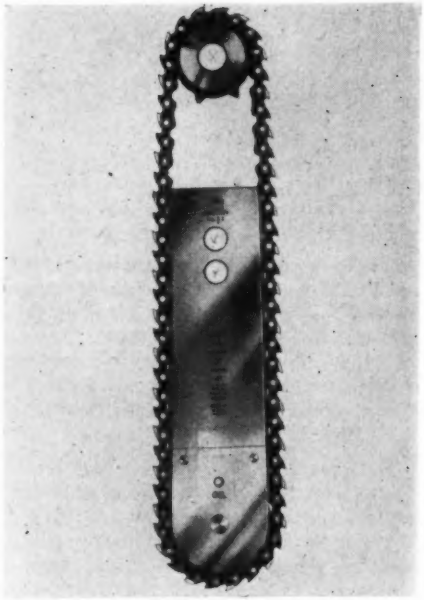

Courtesy Wm. H. Field Company

Fig. 5. Mortise chain for round bottom mortise slot.

stantially flat with two return wheels, which are shown in detail in Fig. 6, providing for a mortise ½" wide by 3¾" long by 5" deep. Since the chisel faces of the mortise teeth cut directly across the grain, on the entering and leaving cut, it is of prime importance that the chisel edges be kept sharp and true, in order to reduce wood fracture and tearing to a minimum. Chain mortisers are faster than hollow mortise bits, but do not produce as smooth and perfect mortise slots.

Plug Cutting

Plug cutting is a technique that was developed for upgrading plywood, by removing knots and defects, and inserting snugly fitting plugs in the proper grain direction, so that such repairs are scarcely observable. This process may also be employed to remove knots and blemishes in solid tim-

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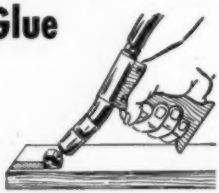

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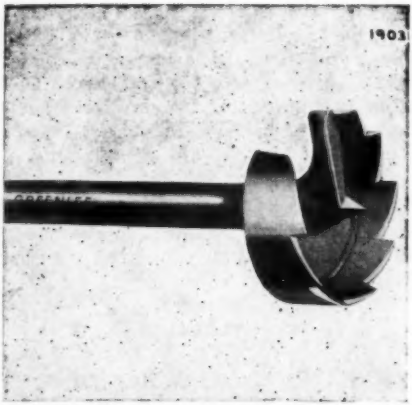
Fig. 6. Supporting frame for flat bottom mortise slot.

bers to facilitate better finishing, although it may impair the strength characteristics.

Plugs may be circular, canoe shaped, or long triangular wedges, but the round plug is most frequently employed and it is the easiest to process.

The round hole for plugging, is made with what might well be termed a miniature cylinder saw, mounted on a drill shank, with a center lead point, as shown in Fig. 7. The saw shaped teeth correspond to the usual spurs of a bit, and a single lip is provided with a sufficient opening to remove the surplus material from the center of the hole. Since this tool is intended for shallow holes only, no grooved shank or stem is provided. While this type of bit, available in sizes from ⅝" to 4", is especially intended to bore into side wood, it can be used as well for end wood, and when well supported for angling holes.

A somewhat similar type of cutting is required for timber connector rings, where there is a central bolt hole through the timber, and a shallow circular groove for bedding the ring. Such a tool usually consists of a counter boring mechanism, Fig. 2, Part V, using a standard auger bit for the bolt hole,



Courtesy Greenlee Brothers & Co.
Fig. 7. Multi-spur machine bit.

and a series of saw tooth cutters attached to a circular disk, which in turn is fastened to the shank of the auger bit. There is no removal of the center material, between the bolt hole and the circular groove, so that no lips are required.

The cutting of plugs to fit in the holes, made as above, is an operation that requires the conservation of the center section, which is usually regarded as surplus material to be removed as a hole is bored. A typical plug cutting bit is shown in Fig. 8. Two cutting teeth, or spurs, with generous gullets are shown in the front and rear of the top view of the illustration. The remaining portion of the peripheral blade is sharpened to a knife edge in order to smooth the edges of the plug as the cut advances.

An essential part of such plug cutters, in the larger sizes, is a spring ejector, as shown, which discharges the plug as soon as it is detached from the surrounding wood, and when the boring pressure is removed. In the smaller sizes, clearance for the removal of plugs is provided above the cutting barrel.

This type of plug cutter, available

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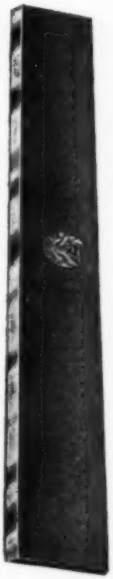

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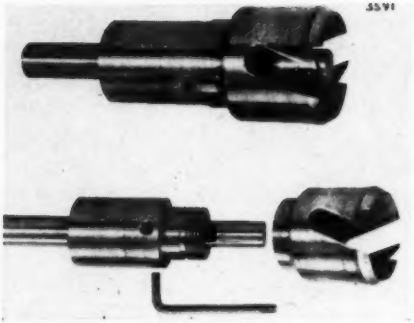

Courtesy Greenlee Brothers & Co.

Fig. 8. Plug cutting bit.

in sizes from ⅜" to 2", while intended for cutting side wood, is also adaptable for end wood, such as plugs for plank flooring. The smaller sizes are without ejectors and have single cutting teeth, while the larger sizes have three or four cutting teeth, or spurs, with intervening knife cutting edges.

There are several interesting modifications in plug cutting, such as taper plugs and holes, canoe shaped holes and plugs, as well as other variations. Details can be secured from the manufacturers of such equipment.

These highly specialized types of cutting tools are excellent illustrations of the ingenuity of those who endeavor to develop devices that will mechanically cut any type of product that may be important in the woodworking industry. "May their tribe increase!"

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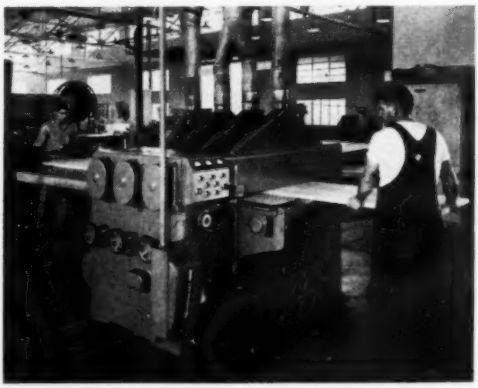

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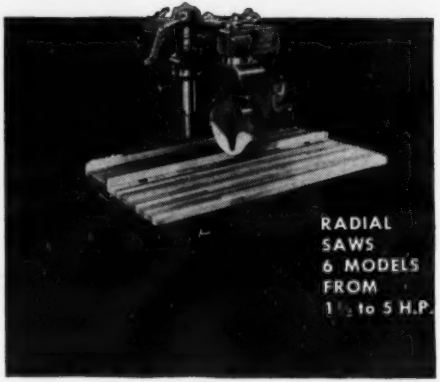

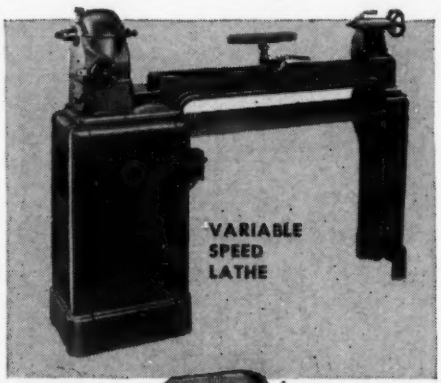

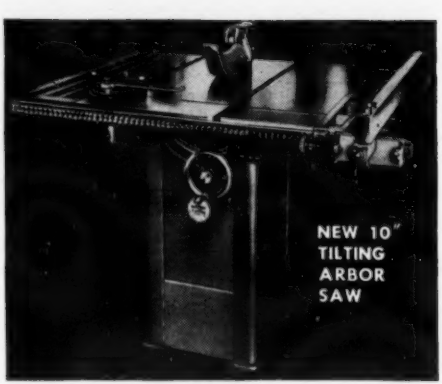

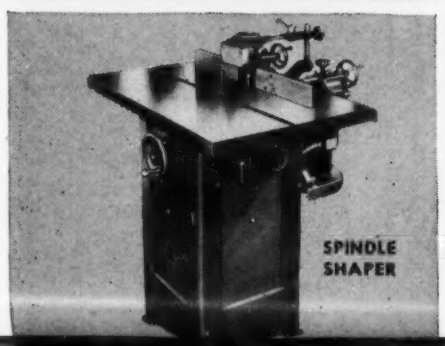

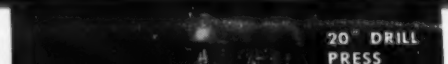

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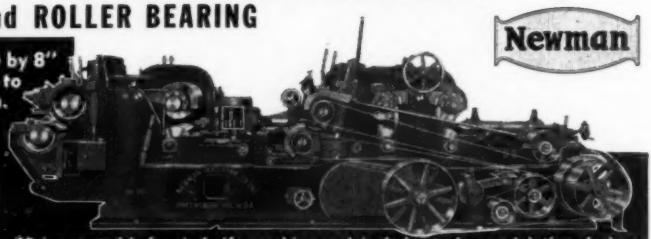

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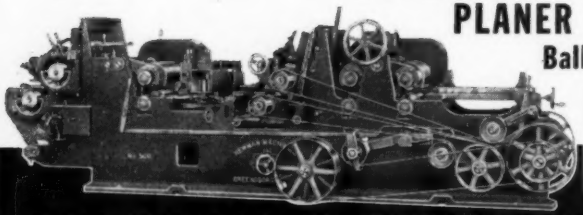

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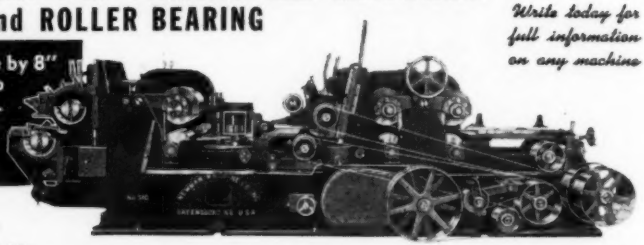

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NEWMAN MACHINE COMPANY INC GREENSBORO N C U.S.A.

Fire retardant wood in industry...

BY R. H. BESCHER

MANAGER, TECHNICAL DEPARTMENT, WOOD PRESERVING DIVISION, KOPPERS CO., INC.

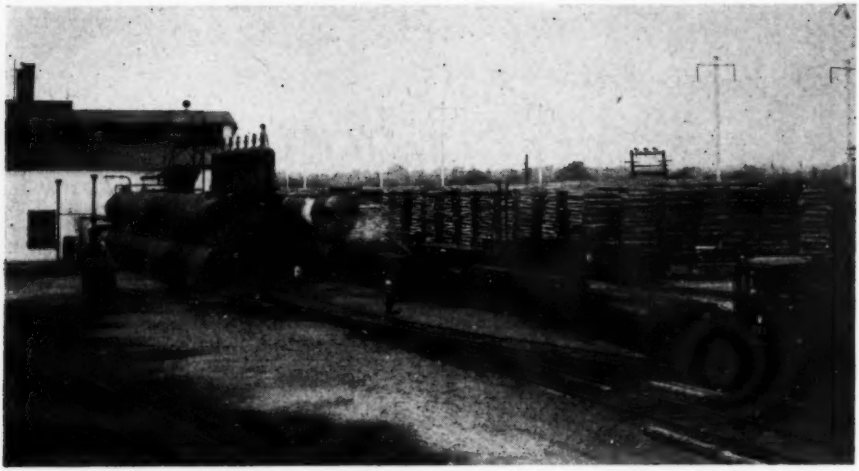
ACCORDING TO National Fire Protection Association estimates there were approximately 538,000 building fires, causing an estimated $703,000,000 damage during 1947. Losses in the woodworking industry alone amounted to $11,400,000, third highest in the manufacturers' classification. The ten major causes of these fire losses, in order of financial loss, are: explosions; defective or overheated heating equipment; electrical fixed services; smoking and matches; lamps, lanterns and oil stoves; exposure; flammable liquids; lightning; spontaneous ignition; sparks on roof. Others high on the list were open lights, flames and sparks from machinery, rubbish fires and incendiaries.

Most of these fires are directly attributable to carelessness, but some are difficult or impossible to eliminate. After such measures as policing, repairing and education are effected, there will be fires. The next move is to minimize the destruction caused by fires that do start.

Many industrial fires originate in the contents of buildings, and there is a time lapse before the structure itself is seriously burned. If this time is long enough, fire control forces can be brought into action and the structure saved. In order to minimize loss if fire starts, two general preventative measures may be taken: control the contents of the building to minimize spread; and erect the building so that it can maintain its structural integrity for the longest possible time against fire exposure. The first step is under the jurisdiction of the building supervisor, and involves good housekeeping and safety regulations. The second is in the hands of the original building designer, requiring proper selection of construction materials and proper principles of construction.

Modern architects take into account the retardance of fire when they design buildings, concerning themselves with fire stops, heavy and slow-burning supporting members, and the elimination of draft and flue action in passages. Their work has been aided in the last few years by introduction of building materials with improved resistance to fire.

One material which has been improved markedly in its ability to repel



Charge of treated lumber being removed from pressure treating cylinder.

fire is wood. Wood has always been a favorite construction material, but its disadvantage has been that it is capable of spreading fire rapidly. A fire retardant treatment for wood has been desirable ever since man has used fire in his working and dwelling places. However, only in the current century has any substantial success been achieved. The most effective treatment, pressure treatment with solutions of fire retardant chemicals, is an outgrowth of the wood preserving industry. Certain chemicals in use for prevention of decay and insect attack were found to improve wood's resistance to flame. By a process of elimination, a few chemicals were found, that, if properly applied, will prevent wood from spreading or supporting flame. It has been proved that pressure treatment, injecting about three pounds of the recognized fire retardant chemicals per cubic foot of wood, will take the wood out of the fire hazard class. When exposed to fire it will not lose its strength as rapidly as many of its competitive materials, will not contribute fuel to any fire that may start, will not spread flame along its surface, and will not generate more smoke or objectionable fumes than the same wood untreated.

One of the most up-to-date and effective treatments is with an improved formulation of the wood preservative, chromated zinc chloride, developed originally to control decay and insect attack. The usual treatment for this purpose is one pound of salt per cubic foot of wood, injected in water solution. By experiment, it was found that an increase in dry salt retention to three pounds per cubic foot gave the treated wood remarkable fire retardant qualities. Further improvement for the purpose has been made by the addition of boric acid and ammonium sulfate. This new formulation, chromated zinc chloride (FR) or CZC (FR) combines exceptional fire retardant qualities with decay and insect protection. The wood is darkened slightly, but workability and paintability are unimpaired.

When installing wood in a new structure, there is no question of the

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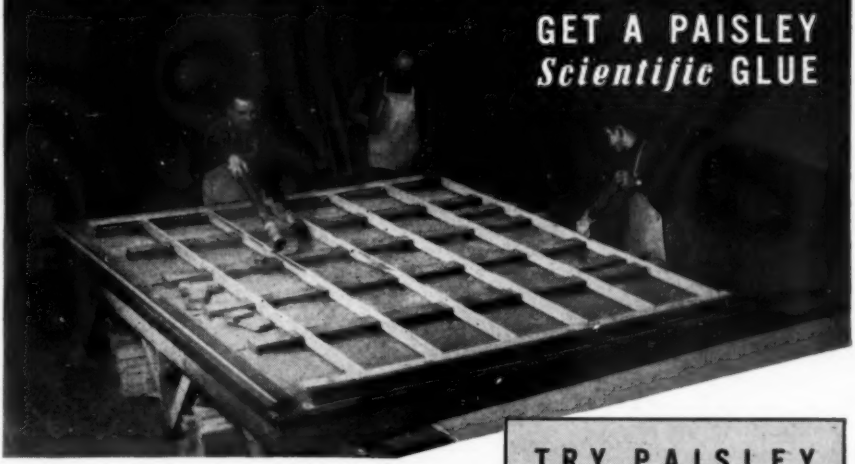

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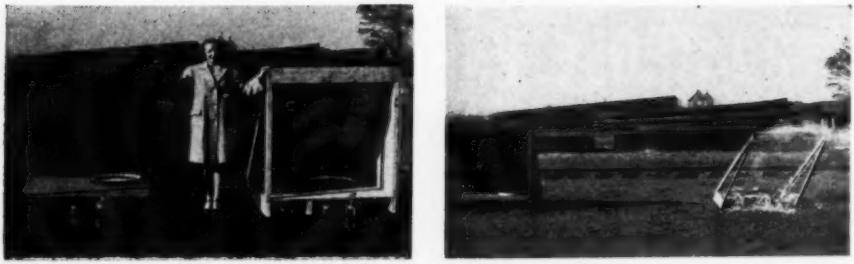

Test of typical roof-corner structures treated with chromated zinc chloride (FR) and not treated. At left are structures before test, untreated structure to the left. 5 pints of kerosene are put into shallow container on floor of each roof corner to supply ignition source. At right, after fuel is consumed. Treated structure is charred where kerosene flames were severe, but did not flame or glow after the kerosene fire went out. The untreated structure continued to flame and glow until reduced to ashes.

advantages of pressure treatment, since all six surfaces and the interior of the wood will be protected. From statistics quoted at the beginning of this article, fixed electrical installations are leaders in causing fires. These are often in partitions, behind the wood, and thus it is of primary importance to have protection on all faces. Surface-application fire retardant materials, though convenient for use on structures already in place, protect only the exposed face of the wood, and very few give durable, effective protection. Fire retardant chromated zinc chloride, on the other hand, will outlast the structure in which it is installed if not exposed to direct weathering or washing. The treated wood can be finished with any paint or varnish suitable for the same wood untreated, or may be sealed with special fire retardant sealers for extreme service requirements.

There are several theories on the means by which wood is protected from fire. When fire retardant salts are applied by pressure, the protection is believed to be accomplished by evolution of non-flammable gases which dilute the oxygen available for combustion, and by a sealing action which keeps flammable wood volatiles in and oxygen out.

The list of uses for fire retardant wood is almost as long as the list of uses of wood. Economically, the treatment is most applicable where the hazard or risk of fire is high; in garages, shops, storage buildings, around machinery and work areas where sawdust and shavings are likely to ignite, and so on. Fire retardant sealers extend the use of pressure treated fire retardant wood to such outdoor work as bridge timbers, platforms, roundhouse construction and building siding.

In actual service, against extreme fire exposure, pressure treated fire retardant wood has proved that it maintains its structural strength and does not spread flame or contribute fuel to a fire.

In a Maryland manufacturing plant an intense lacquer fire broke out in a room where products were sprayed with paint. Plant firemen confined the lacquer blaze to a floor area of about 20 by 50 feet, but the heat was intense enough to melt wiring and lighting fixtures in a ceiling area 20 by 100 feet. Untreated wooden benches at floor level were consumed. The fire retardant wood ceiling was charred to

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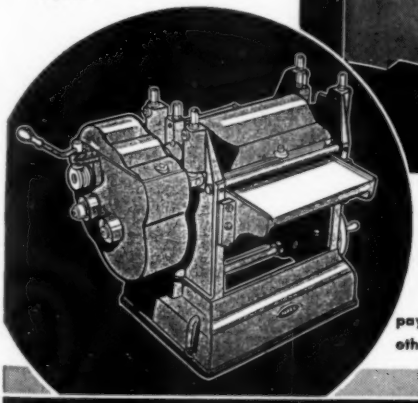

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a depth of about ¼ inch by the intense heat, but structural strength was retained, and no repairs to the wood were made.

An explosion in an Ohio foundry blew 130 pounds of magnesium from a crucible to a height of 12 feet. Some of it caught on the top surfaces of a fume hood made of asbestos board on a fire retardant wood framework. Although exposed to magnesium burning at approximately 4000° F. for ten minutes, there was no evidence of any fire spreading or charring beyond the area in direct contact with the molten metal. No replacement of treated wood was required because of fire damage. It is the opinion of the department foreman that damage would have been much greater if fire retardant wood had not been used. The intense heat probably would have ignited the roof if it had not been constructed of fire retardant lumber.

Pressure treating lumber for fire retardance increases the total cost of a building by a very small percentage. In most cases the cost will be justified, economically, by the extra service life resulting from decay and insect protection. In addition, there is the security of life and property, the welfare of those who live or work in the structure, that cannot be appraised financially.

The End.

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To fill a long-felt need in industry for a heavy duty portable dust collector, The Kirk & Blum Mfg. Co. has announced the new type "M" unit dust collector. Three models are available in 450, 900 and 1800 CFM at high velocity.

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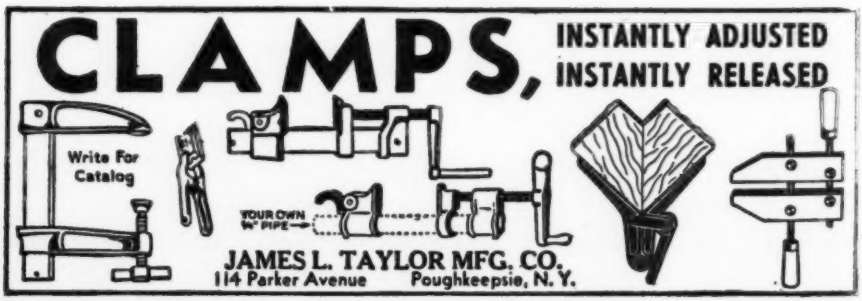
For detailed information write for Bulletin No. 7M to The Kirk & Blum Mfg. Co., 2838 Spring Grove, Cincinnati 25, Ohio.



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(CUTTER DIVISION)

THE G.M. Diehl MACHINE WORKS, INC.

On the Banks of the Wabash

WABASH, INDIANA • U.S.A.

The place of an award program in your Woodworking Plant

BY JOHN LAMBERT

RECOGNITION OF EMPLOYEES THROUGH SERVICE EMBLEMS HAS RESULTED IN BETTER EMPLOYEE RELATIONSHIPS.

EMPLOYERS IN the woodworking industry have long recognized that keeping the individual employee contented, maintaining his attitude of loyalty toward employer and job, is not the least of many factors making for good labor relations. Several methods have been devised and used with success in recognizing and honoring length of service. One of the best is the awarding of service emblems.

In the long run, of course, all such projects of employee recognition do result in better quality work and increased production. Before setting up a system of recognition, the employer will want to examine several systems or methods. Recent surveys over a cross section of concerns employing 100 or more workers have brought some interesting and useful ideas to light. For instance, the cash award has been used by some employers. However, the cash awards are likely to be expensive to the employer and it is difficult to establish a cash award or awards on a fair basis. Another factor is the short "life" of a cash award—the money is spent and the occasion forgotten. A few employers use cash awards with an emblem presentation.

There is also the system of gifts, and the gift is a valuable award providing it is suitable and that it is tied-in with the emblem. Otherwise the gift may serve only a limited time.

However, the giving of emblems for recognition, achievement or incentive is most effectual, say those who have used them over the years, when an established program is in effect. Then procedures are set up which will insure the best results to both employer and employee.

The benefits of such awards lie in their being made as public as is possible: public in the organization and in the community. Accordingly, the objectives of the employer must be: to gratify the pride of the employee who has earned recognition; to keep alive remembrance of the presentation among fellow employees and the recipient;

to establish an incentive for other employees to gain similar honor.

The awards program that has prevailed for years at Swift & Co. and which has attracted widespread attention in all lines for its success is described as follows by Harold F. North, Swift Industrial Relations Department:

"Since 1938 when the report to employes edition of our Swift 'News' was begun, we recognized length of service for Swift employees by printing the names in the report. This proved popular among employees, but offered only annual recognition of this kind. Of course, vacations with pay, increased illness benefits, non-contributory pensions, and other similar programs provide what amounts to financial recognition for long unbroken service.

"In the light of our experience with the publishing of names, we began to look for other ways to give service recognition. We sensed that people like to feel that they are part of a team and naturally seek some way to identify themselves with such an association whenever the opportunity presents itself. Naturally the service pin offered the best recognition of this interest."

Great advances have been made in the design and production of emblems of this type. They are now being used by hundreds of industries.

Making of emblems is a fine art today.

The presentation of the award must be a carefully planned occasion.

Setting Up The Program

In adopting such a program, even to a limited extent or on a trial basis, the employer is taking advantage of some well-established traits in human nature—most workers of all types naturally take pride in their work and an interest in achievement. Many employers believe that emblematic awards, properly presented, may be counted among the most valuable techniques in building a sound industrial or employee relations program.

Occasions for using emblematic awards may be summed up as: recognition of seniority; length of service acknowledgment; quarter-century clubs; seniority in section, zone or department; production or accomplishment recognition; safety record; and constructive ideas provided and/or suggestions made.

Presentation Important

Certain users have found that in some instances an award program fails because of the time and place selected to make the award. To call an employee into the manager's office, for instance, to make a recognition award accomplishes very little. It is just as much the

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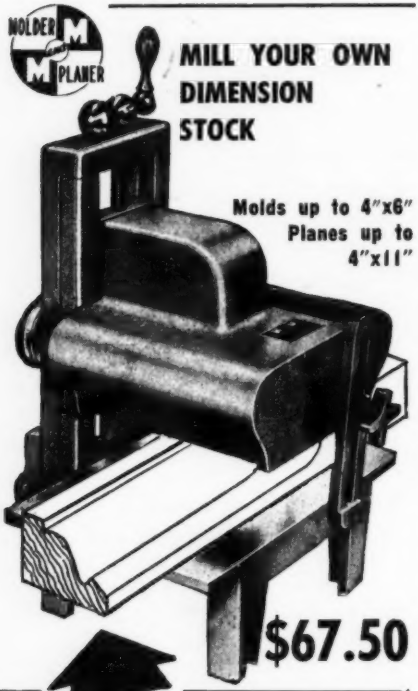

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"other fellow" you wish to impress, the co-worker who is influenced to "go and do likewise." Visible evidence of appreciation on the part of management, showing that the boss really does appreciate good work, makes an impression on the employees. Time and place of presentation are of much importance.

One form of presentation is to make the occasion a luncheon or supper with as many members of the organization present as possible, certainly those in the same department. The highest possible official should personally make the presentation and should state exactly why it is made. One firm has successfully projected Kodachrome slides on the screen at the time of presentation. These slides show the beauty of the emblem and the finer details. As the 5-year group was called up, their award was projected; and so on with the 10-, 15- and 20-year groups. Subsequent annual presentation observances are built up to make this an enjoyable occasion.

The Armstrong Cork Company has this to say of their award program: "Tangible evidences of recognition are highly valued by the recipients. In a social and political environment which stresses the importance of the individual, singularly or in groups, we believe there is a direct relationship between recognition and performance. Recognition given by any enterprise to those employees not only contributes to the over-all effectiveness of the organization, but also is consistent with the American philosophy of dignity of the individual."

Publicizing Awards

It has been found that often little provision is made to publicize the promotion of such awards within the community. Actually when an employee achieves years of service, or outstanding production, it is news to the organiza-

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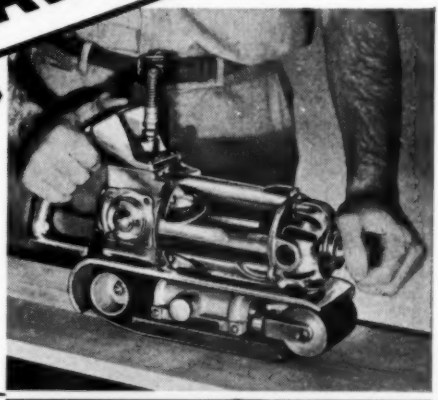

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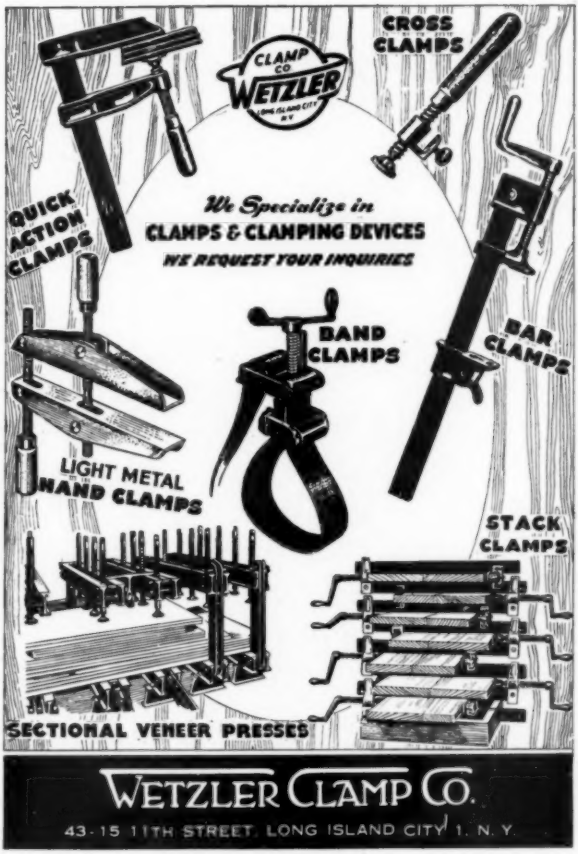
tion and to the community. Every fellow employee, whether in direct contact or not, is interested and all employees have friends and relatives directly interested.

Very often such events are noticed on regional radio broadcasts and in the local papers. Pictures can be used in newspapers, in the house organ and on bulletin boards.

There are many variations in award programs. Some employers give recognition to group achievement. A banner or plaque may be awarded to a group and individual emblems to the members of the group. The banner may be permanent or may be won by a competing department or group. All this should tend to establish a friendly rivalry among sections, departments or groups.

With respect to the type of emblem



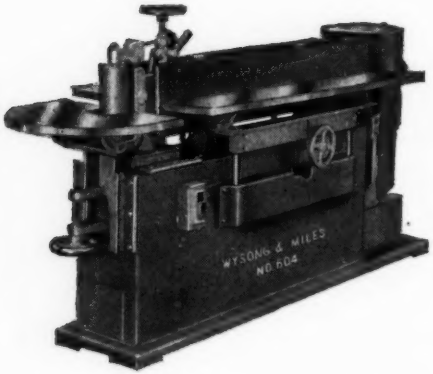
best suited to various purposes, great improvements have been made in design and manufacture. There are pins and buttons of the less expensive type for the smaller organization and for more routine achievements. Elaborate insignias are available for such distinguished workers as 50-year employees.

It is one thing for the employer to maintain an annual program of merit awards and another to use a good system of promoting it when it comes to a contest for performance on the job, for seasonal times, when the safety program needs stimulation, attendance figures lag or the rate of performance needs a boost. On the whole, however, recognition and incentive awards, especially in the form and including the emblem, have become an established procedure with many thousands of employers and in all lines of business.

The End

They say he who laughs last usually wanted to tell the story himself.

—Veneer Newsletter



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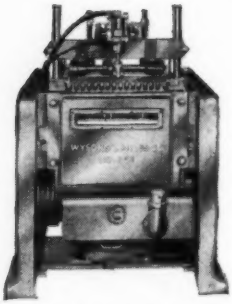

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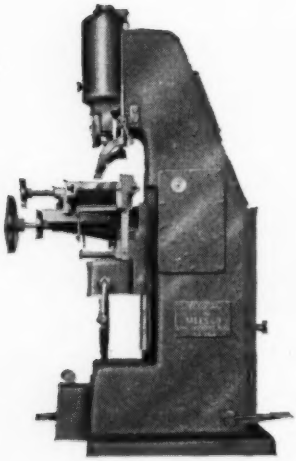

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GREENSBORO, NORTH CAROLINA

ARE OUR OAK TREES DOOMED BY OAK WILT?

BY CURTIS MAY • DIVISION OF FOREST PATHOLOGY
BELTSVILLE, MARYLAND

OAK WILT, a deadly disease now threatening our oaks, is caused by a fungus, **Chalara quercina**, which grows in the sapwood of the tree. The disease is now known to occur in southeastern Minnesota, southern Wisconsin, northern and western Illinois, northwestern Indiana, Iowa, and central and eastern Missouri as far south as Butler County. It may be present in other areas.

All species of oaks that grow wild in the states previously named are susceptible to the disease. Oaks are the only kind of plants known to be affected by the disease.

Symptoms of oak wilt vary with the kind of oak affected. On red and black oaks the disease commonly develops more rapidly than on the white oaks. On affected red oaks, symptoms usually appear first in the upper crown. Leaves become dull or pale light green, and curl upward. Later, before they fall, the leaves may turn yellow to reddish brown, sometimes progressively from the tip or edge to the base. However, affected leaves may fall at any stage of symptom development. Mature diseased leaves may remain stiff even after death. The lower and inner portions of the crown soon become involved and the tree may lose nearly all its leaves within a month after the first symptoms can be seen. In the spring very young leaves on affected trees may wilt, turn black, and cling to the twigs. Red oaks infected late in the year commonly develop small scattered leaves belatedly the following spring, and then soon die. Sucker growth often develops on the trunk or larger branches of the dying trees but the suckers soon become affected and die. In Wisconsin foliage symptoms on diseased trees become conspicuous in June or July but may be seen from May through September.

In the affected parts of the tree a more or less extensive, brown diffuse or streaked discoloration generally develops in the cambium region, which is just beneath the bark. If the bark is peeled from a small branch, the discoloration may appear as a diffuse brownish discoloration or as longitudinal streaks. In a cross section of a diseased branch the discoloration appears as a brown ring or as a circle of brown spots in the outer sapwood. Mycelium and spores of the fungus develop in the water-conducting vessels.

Oak regenerates commonly by stump sprouts. On red and black oaks the stumps and roots are killed and regeneration by sprouts is prevented. The

oak wilt fungus may survive for two years in stumps.

On white oak and bur oak symptoms may differ somewhat from those on red and black oaks. One or more branches in any part of the crown of white or bur oaks may first show symptoms. Leaves may wilt, turn yellow, and drop from diseased branches, while the leaves on the unaffected parts of the tree remain green. Discolored parts of affected leaves may be light tan to brown or dark green and somewhat watersoaked in appearance. Some of the dead leaves remain on the tree. The disease spreads throughout the crown less rapidly than in red oaks but recent reports indicate that white oaks also may be killed by the disease.

Investigators in Wisconsin and Iowa have shown that the fungus that causes the disease can infect oak trees through bark wounds that reach the cambium region. On the other hand, they have reported that when the fungus was placed on uninjured bark, infection did not take place. Wisconsin plant pathologists have found that the fungus causing this wilt often spreads from a diseased to a healthy tree by passing through naturally grafted roots. Natural grafting of oak roots is common in oak woods. It is not known how the fungus spreads from place to place, or to trees beyond the range of naturally grafted roots. Careful study of this problem is needed because its solution may provide information essential to the development of effective and practicable control measures.

Completely satisfactory control methods for the disease have not been developed. It has been reported that in forests and woodlots spread of wilt can be retarded by removing af-

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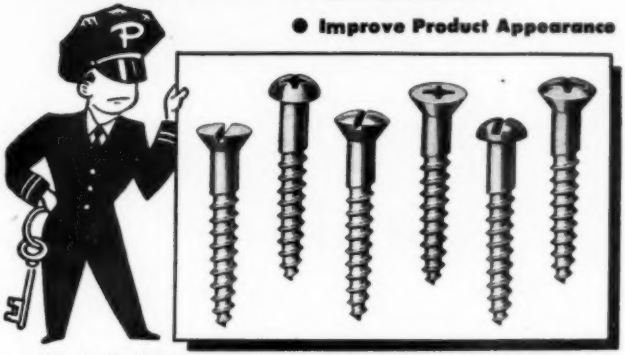

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fected trees. The sooner the sanitation program of diseased tree removal is begun, the better are the chances of achieving the desired result. In felling diseased red oaks, avoid as much as possible wounding nearby trees. Either remove the bark from stumps of felled trees and paint them with creosote or oil, or pile the brush on the stumps and burn them. Burn all small branches, leaves, bark, and slabs from diseased trees. Do not allow parts of diseased trees to contact healthy trees. The Iowa investigators were successful in arresting spread of the disease in one area when all diseased trees and also all healthy red oaks within 100 feet of diseased trees were removed. Small infection centers should be treated promptly. The Wisconsin investigators were successful in arresting spread of the disease in small in-

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fection centers by poisoning the oaks just beyond the border of the infected trees, or by severing all root connections between diseased and nearby healthy trees.

Pruning is sometimes an effective treatment for diseased white oaks. If only one or a few branches show symptoms, remove them. If the disease develops later on other branches, remove them also.

Investigations of oak wilt have been conducted by the Iowa Agricultural Experiment Station; the University of Wisconsin and the Wisconsin Department of Conservation; and the Division of Forest Pathology, Bureau of Plant Industry, Soils, and Agricultural Engineering. The information given here is a compilation, based upon the published results of workers of these institutions.

WD New Literature Section...

ECCO MOULDER BULLETIN

"Ekstrom, Carlson Hi-Speed Moulders" is a new 12-page bulletin illustrating the Ecco Hi-Speed moulders in 6", 8", 10" and 12" capacities, lag or chain bed, with or without hopper feed. Tilting sideheads are available for the 10" and 12" moulders only. No frequency changer is required, but it is claimed possible to operate any or all spindles at pre-selected speeds ranging from 3600 to 7200 R.P.M. Feed is continuously variable by handwheel adjustment, between 25 to 225 R.P.M.

Ask for M100 Moulder Bulletin, Ekstrom, Carlson & Company, Dept. WD, Rockford, Ill.

"WOODWORK VISUALIZED"

The Bruce Publishing Company is presenting this new book especially written for the teaching field. Value of the book to our readers is in their own training programs. The book is exceptionally well illustrated. Here are some of the chapter subjects: Cutting Tools, Lumber—selection and measurement, Layout Tools, Tool Sharpening, Adhesives, Nails, Hardware and Finishing. The book concludes with a number of projects suitable for the home or school workshop.

Order from Bruce Publishing Company, Milwaukee 1, Wisconsin.

PACKAGING & SHIPPING METHODS

Case histories of packaging and shipping short-cuts are contained in the current issue of "Process News," published by Acme Steel Company. Among the features is the story of a logger who conquered choppy seas by bundling timber into rafts; an ironing board manufacturer who cut packaging costs by 87%. Eleven of these capsule stories are told.

Advertising Dept., Acme Steel Co., 2840 Archer Ave., Chicago, Ill.

SAW AND KNIFE MANUAL

Just off the press with 472 pages and over 200 drawings, photos, diagrams and charts, this newly revised edition of the Hanchett "Saw and Knife Fitting Manual" contains a wealth of information for the field. As a ready source of reference, it contains many solutions to the day-to-day problems of both the boss and the skilled workman.

Subjects described in detail include methods of circular and band saw sharpening; tensioning, brazing, welding, swaging, shaping, filing, setting, etc. It also has chapters on knife and shear blade grinding, suggested floor plans for the filing room and many other features.

Hanchett Manufacturing Company, Big Rapids, Michigan.

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MANUFACTURERS OF VARNISHES — PAINTS — STAINS — LACQUERS — SYNTHETIC ENAMELS — CELLO FILM — SOLDERING FLUX AND SPECIAL COATINGS.

The Finishing of *Philippine Mahogany*

BY E. R. HOLLINGER
FURNITURE FINISHES DIVISION
THE SHERWIN-WILLIAMS COMPANY

THE MOST logical approach to the problem of finishing Philippine mahoganys would be to approach the subject not as a problem. The Philippine Mahogany Association recently approached Sherwin-Williams with the request for a proposal on various furniture type finishes for the assorted grades and textures of the available woods in this class. The approach to the assignment was to consider it in the same light as finishing any other standard furniture wood, with the result that some total of 20 special finishing systems on 4 textures of Philippine mahogany were produced, all of which were finished in a conventional manner and all of which made satisfactory appearing furniture finishes. A few observations made during the course of this investigation will, however, be of value to finishers and manufacturers who are contemplating wider usage of this furniture wood.

In all of the hard texture types of Philippine mahogany there are no special considerations which must be given if well formulated furniture finishes are employed throughout the finishing system. In some of the softer textures, particularly in the very light colored woods, glue sizing before final sanding in the assembly shop greatly facilitates the ease of the subsequent application of the finishing system.

The Philippine Mahogany Association has available a full color brochure illustrating 12 of the 20 finishes which have been prepared on both straight grain and ribbon texture cuts of various grades of Philippine mahogany. Inspection of this brochure will reveal the very wide possiblities of furniture finishing schemes which are possible on this type of wood. We will outline briefly the various steps used in producing these finishes.

Staining

Staining of the wood can be accomplished by any of the conventional furniture staining methods. The standard non-grain raising type of stain should be of the high intensity type so that a

maximum of color can be obtained with a minimum wetting of the wood fibres. A maximum air dry time of 30 minutes is required on this type of stain with correspondingly shorter drying times if the finishing is carried on where heat tunnels are available. Conventional pigment wiping stains of the furniture type produce very excellent results particularly in the harder textured grades of Philippine, but of course, require considerably longer drying times, usually up to 4 hours in a completely air dry system. This type of stain, however, does exhibit a sealing tendency on the wood and has a noticeable effect in holding up the subsequently applied top coats. Certain special staining techniques give good results, particularly on the fine textured grades of Philippine mahogany, and an example of this type of staining technique is to apply a special pigmented ground coat which consists of a very low solids, fast dry coating in which relatively transparent earth colors have been incorporated, very uniformly over the well sanded wood surface and allowed to air dry approximately 20 minutes. This coating is followed by one of the conventional pigment wiping stains previously referred to, and wiped in the conventional manner. Where non-uniform density of wood is encountered, this system tends to produce uniform staining over the entire surface and gives a very brilliant and light-fast color to the final finishing system. Similar uniform results can be obtained to a slightly less degree by incorporating both the non-grain raising stain and wiping stain in the same manner.

Filling

Because of the slightly deeper pore structure in certain textures of Philippine mahogany, wood fillers employed must be so formulated to give maximum filling qualities. For most applications the so-called "quick dry" type which can usually be recoated within a 4-hour air dry period are recommended. The fillers should be reduced as per manufacturer's instructions with the fastest evaporating solvent which will be consistent with good wiping qualities. Fillers can be applied by either spray or brush, but for exceptionally high quality work fillers which are applied by spray should be brushed with the grain to break up any air bubbles which may be trapped in the pore structure. When sufficient solvent has evaporated to cause the filler film to appear flat, the fillers should be padded well into the pore structure with a short circular motion over the entire surface, employing rag or burlap pads, or one of the mechanical felt padding machines. After padding, the filler should then be removed with coarse burlap or sisal pads by wiping across the grain of the wood. For certain special effects where it is desired to obtain an extreme brilliance of finish or a considerable contrast in color between the pore structure and the balance of the wood, it is desirable to precede the filling operation with a "wash coat." These coatings usually consist of a very low solids cut of shellac (6 to 8% solids) or may be of the nitrocellulose variety. Ordinarily the wash coats are completely transparent coatings applied immediately after the staining operation, or for special effects they may be lightly pigmented to impart a uniform light color to the entire wood surface.

The purpose of the wash coat is, of course, to make the entire surface of the wood, except the pore structure, impervious to the color effects of the filler to be subsequently applied. The wash coats are particularly effective in the softer textures of Philippine mahogany because they have a case hardening effect on the surface of the wood which permits an excellent clean-up of

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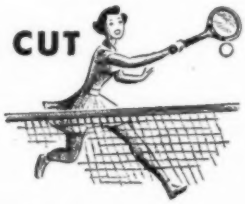

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any fuzzy wood fibre residue with very light sanding with No. 320 or finer paper. Wash coats, of course, contribute materially to the ultimate hold-out or fullness of the applied top coats. Wash coats are of particular value in producing some of the modern type finishes where it is desirable to fill the pore with a white pigmented filler, since the wash coat prevents the smearing of the white pigment over the balance of the surface of the wood, which would result in a very cloudy, rather than a clear sharp contrast.

Sealing

Conventional lacquer type of sanding sealers give very excellent results in the finishing of Philippine mahogany and selection would depend largely upon the type of finish being employed and the ultimate exposure to which the finished wood is to be subjected. Mention should be made, however, of the very new type of synthetic sealers which have appeared on the market recently and which produce tough resistant finishing surfaces. Ordinarily fillers and stains can be recoated immediately with this type of sealer and the drying time ordinarily alloted to the fillers is sufficient for drying both the filler and the sealer coats. They have the tendency to provide excellent holdcut to both lacquer and synthetic top coats.

Shading or Glazing

In many cases, particularly in provincial designs of furniture, it is desirable to produce color highlights in the finish. This is usually accomplished by the application of lacquer shading stains which are applied with a special shading type spray gun or by the application of a pigmented glaze which is sprayed over the entire surface and then worked into the desirable high-

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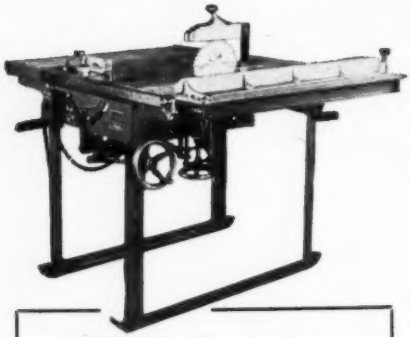

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lighting characteristics either by wiping or brushing the film until the proper results are obtained. Conventional type shading lacquers or glazes are, of course, recommended in the finishing of Philippine mahogany.

Finishing Coats

Conventional top coats in the 24% to 27% solids classification will usually produce a surface quite adequate for the subsequent rubbing operation if two coats are applied over a well filled and sealed surface. If the work being finished is exceedingly rough it would be well, however, to employ three coats of the top coat material with a sanding operation between the second and third coats. This, however, will be necessary only in the case of very rough work and could well be avoided by an adequate sanding of the wood in the cabinet shop, which is certainly a much cheaper operation. Very excellent results can also be obtained by employing the new synthetic type of top coats. These finishes are characterized by their extreme toughness and resistance to such materials as alcoholic beverages, moisture, alkali, nail polish, etc. In the baking type, this finish has been available for a good many years, but recent developments have made the same type of finish available in an air dry type which ultimately produces the same tough resistant film as the baking type. For exceptionally high quality work or where extreme toughness and resistance is to be required, a finishing system built up with the previously mentioned synthetic type of sealer and a finish coat of the synthetic varnish will give highly satisfactory results.

Several special finishing systems should probably be mentioned briefly—notable among which would be the so-called "waxing lacquer system" in which the sealer coat is eliminated and

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two coats of a special waxing lacquer are applied over the filled work and the smoothness of finish produced by first sanding the waxing lacquer with No. 320 to No. 360 grit wet or dry paper, and then rubbing with No. 000 or No. 0000 steel wool. The final finish is obtained by waxing the surface so prepared, resulting in a satin finish of good appearance and durability. Another special application which probably should be mentioned is the finishing system recommended for the tops of television receiver cabinets where the wood is exposed to more than the normal amount of heat. A line of television cabinet lacquers has been formulated specifically for this application and the appropriate sealers and top coats should be employed for this application. Some very excellent blonde finish effects may be obtained without the costly and undesirable process of bleaching by employing some of the very light colored grades of Philippine mahogany available.

Specific information for the finishing of Philippine mahogany is readily available upon application to the Philippine Mahogany Association, 111 W. 7th St., Los Angeles 14, Calif.

The End

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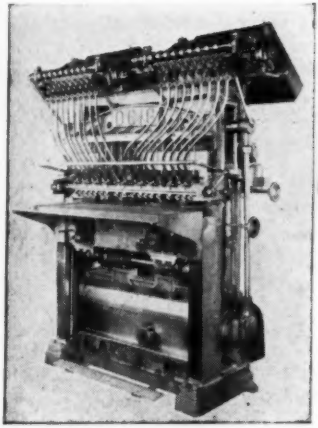

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Safety

pays off in North Carolina's woodworking industry

BY FORREST H. SHUFORD

NORTH CAROLINA COMMISSIONER OF LABOR

"ACCIDENTS COST money—more money than good business men are willing to pay."

Fact, or just opinion?

Judging by the reaction of North Carolina business leaders to the North Carolina Department of Labor's safety program for the woodworking industry, that statement expresses a bread-and-butter fact.

Our Tar Heel wood furniture industry—biggest in the nation—in 1946 reported more than 20 serious injuries to workers for each million manhours worked.

Rising production, hiring of inexperienced workers and other postwar readjustment factors caused a 10 per cent jump in the accident rate during 1947, sending it to a high of more than 22 lost-time accidents for each million manhours worked. Such an accident rate showed clearly our need for an intensive program of accident prevention.

In cooperation with our State Department of Labor and the Department's unofficial but very effective Manpower Conservation Advisory Board of industrial safety engineers, the 261 North Carolina wood furniture factories have reduced their job accident rate 43 per cent since 1947.

Here's how it was done:

Enlisting the active support of the 175 North Carolina members of the Southern Furniture Manufacturers Association, our State Department of Labor attacked the woodworking industry's accident problem on three fronts: through factory inspections, safety education and safety organization.

Our Labor Department factory inspectors made five separate safety inspections of the entire furniture industry at planned intervals. They found unsafe conditions which required more than 1,500 recommendations for improvement of mechanical equipment, working conditions and practices. Compliance was secured in nearly 90 per cent of all instances where recommendations were made.

Educational work in this campaign included the preparation and distribution of nine safety pamphlets to plant managers and supervisory personnel. Each pamphlet explained what to do about some particular phase of the ac-

First aid. Every woodworking plant needs a well planned first aid setup. Small plants, which usually cannot afford to employ a full-time nurse and which do not usually have any kind of organized medical service in the plant, can easily maintain a fully equipped first aid kit for use in treating minor injuries and for emergency treatment in more serious cases.

cident problem in furniture factories: "Handling Materials," "Good Housekeeping," "Machinery Hazards," "Hand Tools," "Eye Protection," "Fire Prevention and Electrical Hazards," "First Aid," "Hot Weather Safety Measures," "Saftey Committee Manual." These safety pamphlets proved to be so popular with the industry that the entire series was circulated, upon request, to many out-of-state members of the Southern Furniture Manufacturers Association.

Widespread use of the "Safety Committee Manual," together with promotion of plant safety organizations by the factory inspectors, were effective in producing increased interest in plant safety committees and organized programs. At the end of our third industry-wide inspection, we found that a total of 95 furniture factories had such organizations and programs in operation—an expansion of 200 per cent over the previous year.

During 1947 the industry in North Carolina employed more than 27,000 workers who put in 55,743,818 manhours of work. A total of 1,244 lost-time accidents occurred on the job, giving the industry a job accident rate of 22.32.

During 1948, when the furniture safety program went into action, the same factories employed nearly 30,000 workers. Production time soared to 57,126,122 manhours. Workers suffered 903 lost-time accidents, giving the industry a frequency rate of 15.80—a 29 per cent reduction from the previous year's rate.

Progress continued at the same pace during 1949. The number of lost-time accidents again dropped sharply. The accident rate was reduced to 12.71, or 43 per cent below the 1947 rate.

This remarkable safety achievement by the North Carolina wood furniture

Power saw hazards. The hazards to the worker who adjusts logs into place for sawing in this picture are obvious. Entire saw should be covered by a guard, leaving it open only at the bottom where actual sawing takes place. This is another typical operation in plywood and veneer factories which saw their own blocks.

The WISCONSIN Model "K" CUTTER GRINDER

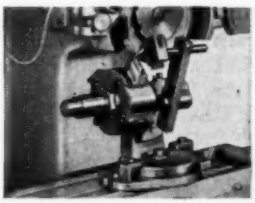
WISCONSIN Model "K" Cutter Grinder. Write for Illustrated Bulletin.

PROVEN IN USE . . . PRAISED BY USERS

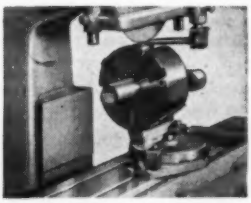
for its Precision Workmanship, Versatility, and Sturdy Construction

- Correct wheel speeds, governed by 3-speed, V-belt drive, prevent "burning" of knives.
- Grinds knives and cutters in-the-head, straight or spiral.
- Grinds carbide-tipped cutters with diamond wheel.

Write for names of enthusiastic users near you. Let them tell you what the Model "K" delivers in precision cutter grinding, versatility, strength, stability.



Grinding carbide-tipped cutters



Grinding knives in tenon head

CUTTER HEADS BADGER KNIVES

Engineers to the Woodworking Industry

WISCONSIN KNIFE WORKS

BELOIT, WISCONSIN

A-5808-1P-AA

Plant safety committee. One of the most important phases of our safety programs in both the wood furniture and plywood and veneer industries is the encouragement of permanent plant safety committees. Here a small factory superintendent discusses safety recommendations with the members of his safety committee, who include two working foremen and two workers.

industry is a striking proof of what industry and government can do when they put their heads and resources together to attack serious problems. A 43 per cent reduction in occupational accidents has saved Tar Heel furniture workers and their families a tremendous amount of suffering, inconvenience and lost earnings. It also has meant substantial economies to management in uninterrupted production, reduced workmen's compensation insurance rates, and the very real satisfaction of a humanitarian job well done.

Before beginning this accident prevention program in the furniture industry, our Department of Labor had conducted a similar drive in the state's much smaller brick and tile industry. Results of the program in that industry were almost equally good. The 1949 accident rate in brick and tile plants was 40 per cent below the 1946 rate. Low rates are being maintained.

Next branch of North Carolina's woodworking industry to be selected for an accident prevention drive was the plywood and veneer industry. The record shows that severe occupational hazards exist in the more than 80 plywood and veneer plants in this state. In four years prior to 1949 the industry reported more than 5,000 lost-time accidents which caused 11 deaths and 43,192 man-days of lost production due to job injuries.

First round of inspections in the plywood and veneer plants, which was made early in 1950, showed 249 serious accidents in 1949 and an accident rate of 22.86 for last year. Our factory inspectors made 303 safety recommendations during the first go-round. A second round of inspections, from which reports are not yet available, was made in July.

Results of the safety program in this industry have not yet matured. We are confident, however, that savings of life, limb and money will be substantial. Leaders of the industry are giving us their whole-hearted support and cooperation. A new series of illustrated pamphlets on such subjects as "Log Unloading and Storage," "Steam Vats and Steam Chambers," and eight others similar to those used in the furniture drive, are being circulated to supervisory personnel. Plant safety committees and programs are being organized.

One reason why these industry-wide

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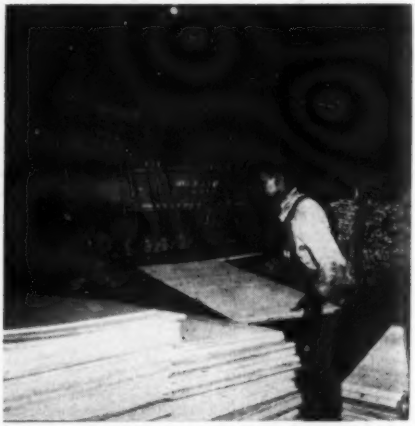
STALTER EDGE TOOL COMPANY

GRAND RAPIDS, MICHIGAN

safety drives are so effective is that most plants in these industries are comparatively small and do not enjoy the services of full-time safety directors. A few of the larger plants do employ trained safety engineers who have put accident prevention upon a working basis in their plants and have secured excellent results. It is the smaller plant, however, which benefits most from an industry-wide safety campaign. Through the periodic safety inspection, education and consultation service offered by the state factory inspector, the management of these small plants are enabled to check their own plant hazards and accident experiences against those of the industry and to plan intelligently the steps necessary to secure a reduction in their accident rates. They are furnished guidance in the best methods of organizing safety committees and programs. The fact that

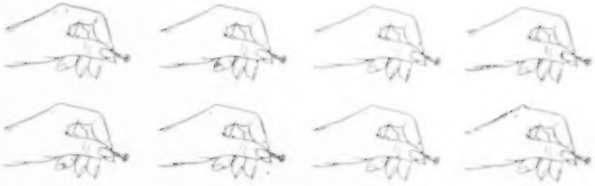


Machine hazards. Hazards of moving and cutting machinery are severe in both wood furniture and plywood and veneer factories. In many instances where a compromise must be reached between guarding a machine and productive efficiency, much depends upon the operator's alertness and skill. This picture illustrates the necessity of alertness and consciousness of hazards on the part of the operator.

PACK

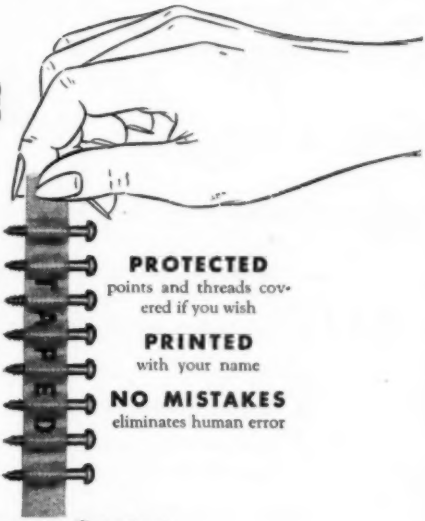
8

SCREWS



ONE AT A TIME

OR 8 SCREWS AT ONCE



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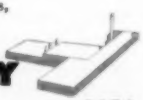
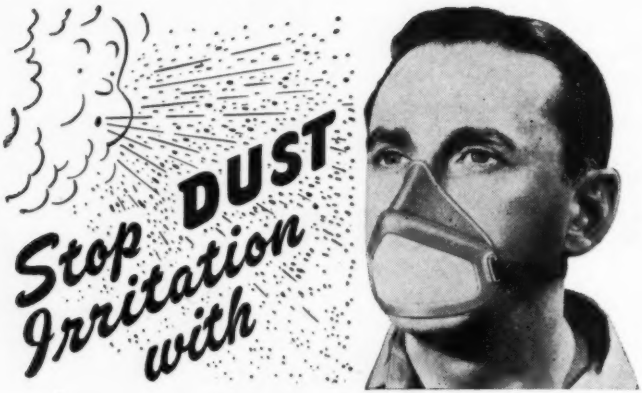


1950



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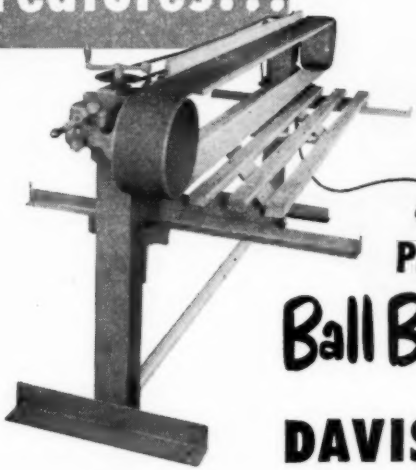
their entire industry is participating in a safety campaign adds an additional stimulus to their private efforts to obtain a lower accident rate.

Another method of stimulating the interest of labor and management in accident prevention, which we have found very helpful, has been a program of awards. More than half of the furniture factories which participated in the safety drive for that industry were winners of our Certificate of Safety Achievement, which is presented annually, with appropriate ceremonies where possible, to firms which have reduced their accident rates 40 per cent or more during the year. Several furniture plants have qualified for this award for two or three consecutive years.

A valuable aid to our Department of Labor in preparing for these specialized safety drives has been the inspector training schools which have been

Many Top Features...



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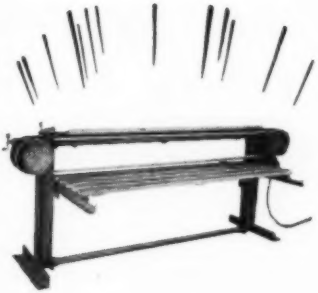
Check this one. Here is a top rated ball bearing belt sander by Davis & Wells, priced very low in relation to its many excellent features. This sander takes a 6" wide belt. Ball bearings are sealed in lubrication. Table assembly floats on ball bearing rollers, has full adjustment range for flat sanding under belt. To fit your needs a variety of table sizes are available. The point is: this Davis & Wells Belt Sander is a low cost investment for your shop, with a high-grade return. Another fine, new member in the famous Davis & Wells line of woodworking machinery. Full details in free literature sent on request.



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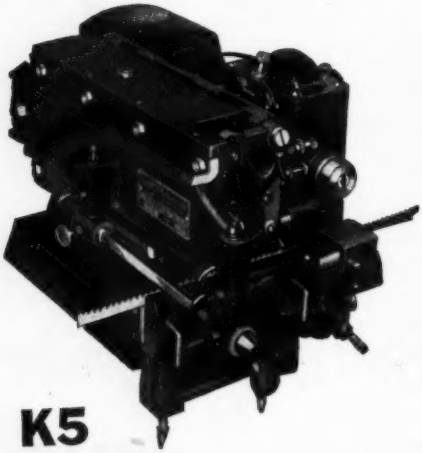

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After the saw is clamped in vise the K5 requires no further attention. Its speed is the equivalent of four men working by hand and far greater accuracy. The teeth are filed, set and jointed with absolute uniformity. The result is obvious in cutting. Cleaner, faster cutting, longer periods between replacement. Write for bulletin K5

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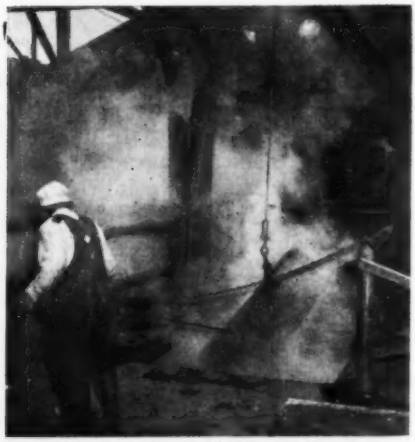
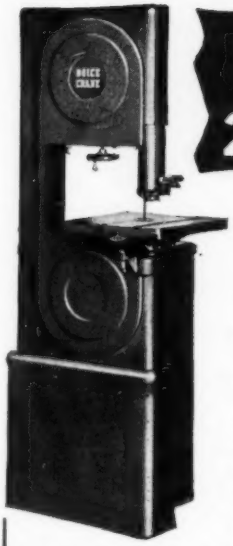
conducted in North Carolina by representatives of the Bureau of Labor Standards, U. S. Department of Labor. Particularly helpful was Mr. Stanley J. Butcher, one of the bureau's best safety promotion specialists and a man with long experience in the industrial safety field. Held prior to each new safety drive, these training schools help to familiarize our factory inspectors with the hazards and accident problems peculiar to each industry and the best methods of solving those problems.

The principal features of our safety campaigns have been worked out in advance of each drive with the able assistance of our Manpower Conservation Advisory Board—a group of 23 of the state's top-flight industrial safety engineers employed by leading manufacturing establishments. These men serve on our board without compensation for the purpose of advancing in



Steam vats. One of the most severe hazards to plywood and veneer factory workers is improperly guarded steam vats. In this picture the vat is guarded on three sides by a tubular steel rail. On the fourth side, to which the operator must have access, the guard consists of a heavy chain which may be unlocked when the need arises.



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2 to 4 Times *FASTER!*

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14-inch BAND SAW

Operates at higher speed—4,400 blade feet per minute. Smoother, more accurate cutting.

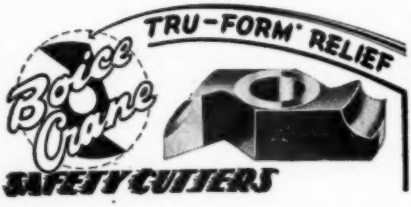
Single and 8-speed back-geared models for cutting practically any material. Clears 8⅝" under the guide.

One-piece welded steel frame has tremendous strength. Wheels and blade, except at cutting point, entirely enclosed. Cabinet type base has sealed-off motor compartment. High safety rating.

Blade guides adjust by a single control, and with full safety, even when the machine is running.

Close balance and light, but strong, molded Textolite wheels permit twice the speed of other 14-inch machines. Less vibration. Longer bearing life. Often pays for itself in three to six months.

Sawing capacity: Blade to guard—13½", 27" diameter work. Guide to work table—8⅝". Table: Tilts on double trunnions. Size 15" x 15½". Height overall of floor model—67". Blade widths: ⅜", ¼", ⅜", ½" and ¾". Length of blade: 98". Wheels: 14" dia.—1" face. Grease sealed ball bearings. Blade speed at 1200 r.p.m.: 4,400 ft. per minute.



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The first cutters at moderate prices with CIRCULAR or INVOLUTE RELIEF (also called flattened-arc relief: cam-profiled relief).

The "Tru-Form" principle involves design and new machining methods that:

1. Assure cleaner, more burn-free cutting.
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3. Provide a larger rake angle. Never a laggy, scraping cut, always easy and clean cuts that shear or shave the work without vibration.
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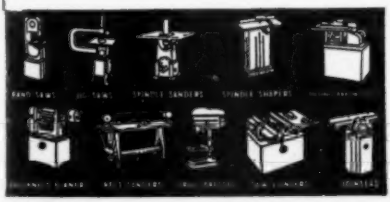
Fine tungsten tool steel. Deep uniform hardening. Precision formed. Razor sharp. Designed for Boice-Crane Shapers but improve performance of all other makes.

Sold through industrial supply distributors in most cities.



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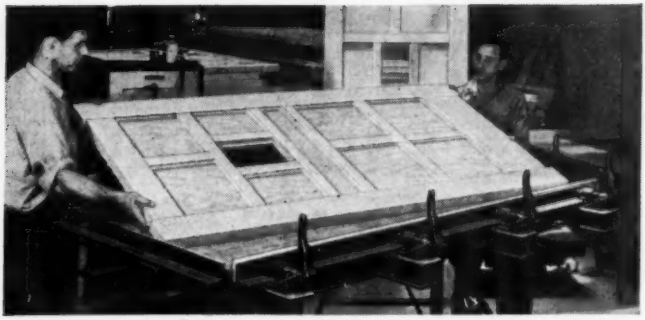

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De-Sta-Co Toggle Clamps speed production for this door manufacturer. Six Model 640 clamps are used in the fixture to obtain quick clamping action and positive holding pressure, evenly distributed. The use of a dielectric bonding device and new-type fast-drying glues speed the drying cycle to such an extent that the fast action of De-Sta-Co Toggle Clamps is required to maintain a high rate of production. Result: 20 high quality exterior doors in five hours; ordinarily, 1 door would be processed in this time.

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See the complete line of De-Sta-Co Toggle Clamps in our illustrated catalog, No. 49. Write today for *your* copy and the name of the stocking representative in your area.

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our state as a whole the safety know-how which they apply in the plants by which they are employed. They have worked closely with the Labor Department on all safety campaigns since the organization of the board early in 1946.

Also of much value in our woodworking industry safety program was the generous cooperation of Mr. J. T. Ryan, executive vice-president of the Southern Furniture Manufacturers Association. The cooperation of industry associations, and the publicity given to safety campaigns through their publications, are useful assets to any industry-wide safety program.

The final point about our woodworking industry safety program which deserves emphasis is that the entire procedure was placed upon a basis of voluntary cooperation. Our State Labor

Unguarded machinery. The hazards of unguarded moving parts are dramatically illustrated in this typical plywood and veneer plant operation. Moving gears at each end of machine should be enclosed in guards.

Department has statutory authority to require strict compliance with every detail of our Safety Rules and Regulations. Only in rare instances, in our routine inspection work, do we find it necessary to invoke that legal authority. In our special safety drives we have proceeded upon the assumption that voluntary compliance produces better results than police measures. The actual results of our programs have justified us fully in that assumption.

We have found our big opportunity for service to industry in using the technique of persuasion—selling management upon the desirability and economy of safe and healthful working conditions in their plants. In most instances, we have found that management in the woodworking industry can be sold upon the need for safety precautions and will gladly accept a practical program to meet the need.

Cooperation has paid off in North Carolina's woodworking industry. What North Carolina industry and government have accomplished by working together in this field can be duplicated by other states which make the effort and secure the necessary team work.

The End.

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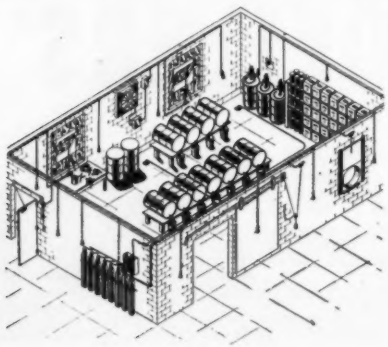
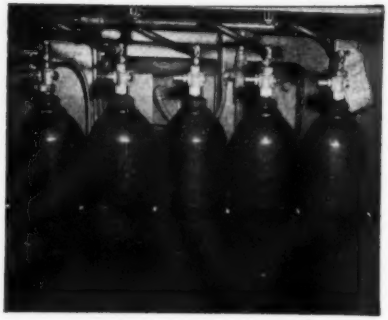
NEW SYSTEM FOR KILLING FIRES

American-LaFrance-Foamite Corporation is announcing a new carbon dioxide fire extinguishing system for the protection of class B and C risks, and for class A risks in closed vaults or other similar storage type rooms.

This system can readily be adapted to meet whatever needs a risk may require. The battery and operating equipment can be located at, adjacent to or remote from a risk. Additional cylinders may be added at any time. The release system may be automatic or manual, or both. It is easily installed, and functions with comparatively few parts. Flexible connections between the cylinders facilitate installing, weighing or removing cylinders for recharging or replacement.





Fully illustrated literature available upon request to the above company, Elmira, N. Y.

SHOP FIRST AID PAYS OFF

In the smaller shop, as well as in the large plant, provision for prompt first-aid treatment of minor, on-the-job injuries pays off.

Where machines are operated, tools are handled and heavy objects are moved about there is always the chance of a wound or other injury. No more may be required than thorough cleansing, and application of an antiseptic and an adhesive bandage (the type of ready-to-use dressing with the gauze pad already affixed to the adhesive tape), but if even the most minor injury in which the skin is broken is neglected there is always the danger of infection. One of the lesser consequences of infection may be loss of several days working time; other consequences may be much more serious.

The small shop cannot afford to maintain a full-time physician or

trained nurse, but it can afford to provide a first-aid kit and compact first-aid guide for the use of employees. A kit for the small shop should contain the following basic items.

Gauze (roll)	Gauze pads
Absorbent cotton	Antiseptic
Adhesive tape	Burn ointment
Ready-to-use adhesive bandages	
Rubbing alcohol	Turpentine

So far as open wounds are concerned, the chief purpose of first aid is to prevent additional germs from getting into the wound, and to keep the wound clean and protected. Rubbing alcohol is the best thing to use for removing most kinds of dirt on the skin about the wound. Turpentine can be used to remove grease and oil.

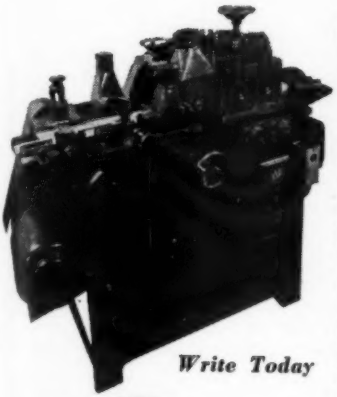
Ready-to-use adhesive bandages are available in a variety of sizes and are the most convenient form of dressing for minor wounds. If an antiseptic is used it should be allowed to dry before the adhesive bandage is applied.

For information as to sources for these first aid kits, write the Safety Editor.

BIFOCALS

We businessmen ought to put on bifocal glasses. The lower or near vision portion should be focused on our own businesses, and the upper or distant vision portion should be focused on all the people. In this way, every time we look up from our work we will see all the great groups that government keeps its eyes on and be reminded that these, rather than merely the particular accounts on our books, are the real customers of business. **Clarence Francis, chairman of the board, General Foods Corp., New York, N. Y.**

Between 10 and 12 million people earn part or all of their income from America's abundant forests and the industries using forest products.



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THE TIMESAVER SHAPEMAKER

The SHAPEMAKER is a production machine with high speed spindles that operate at 10,000 RPM's. This spindle speed affords more cuts per inch producing smoother and more work. The positive feed operates at speeds up to 100 SFM. Each spindle and the feed works is powered by a separate motor. The SHAPEMAKER is sturdily constructed and will give long and satisfactory service. The simplicity of its design enables quick and easy set-ups for short run jobs. For medium work this "Timesaver" is the perfect machine at a price that will please you. Get the facts and you'll get a SHAPEMAKER.

Speedmoulders • Shapemakers • Speedrippers • Laddermakers

TIMESAVERS, INC.

549 W. Washington Blvd. Chicago 6, Illinois

WWD Industry Notes

INDIANA'S FIRST FORESTRY SHOW

Plans for a logging and sawmilling equipment show, the first to be held in Indiana, have been announced. The show will be held at the Purdue-Moses Fell Annex farm near Bedford on Oct. 25-26. The event will be sponsored by the Central States Forest Experiment Station, Columbus, Ohio; Bedford Chamber of Commerce; Indiana state division of forestry; Wayne-Hoosier National Forest; Indiana Hardwood Lumbermen's Association; U. S. Soil Conservation Service and Purdue University. Demonstrations of felling, skidding and loading equipment as well as actual sawing will be shown during the two-day program.

NEW FIRM

Winston I. Parks, formerly public relations and research director with Adams Steele, Inc., management engineers and Benge Associates, personnel consultants, Chicago, has organized his own public relations, advertising and industrial relations firm, Winston Parks Associates, located in the Young Building, 19 East Jefferson Street, Joliet, Ill.

W. T. NEAL

W. T. Neal, treasurer of the Southern Pine Association and member of its board of directors, died recently in Brewton, Ala. At the time of his death he was president of T. R. Miller Mill Co., a position he had held since 1924.

A. G. BRYANT TO SPEAK

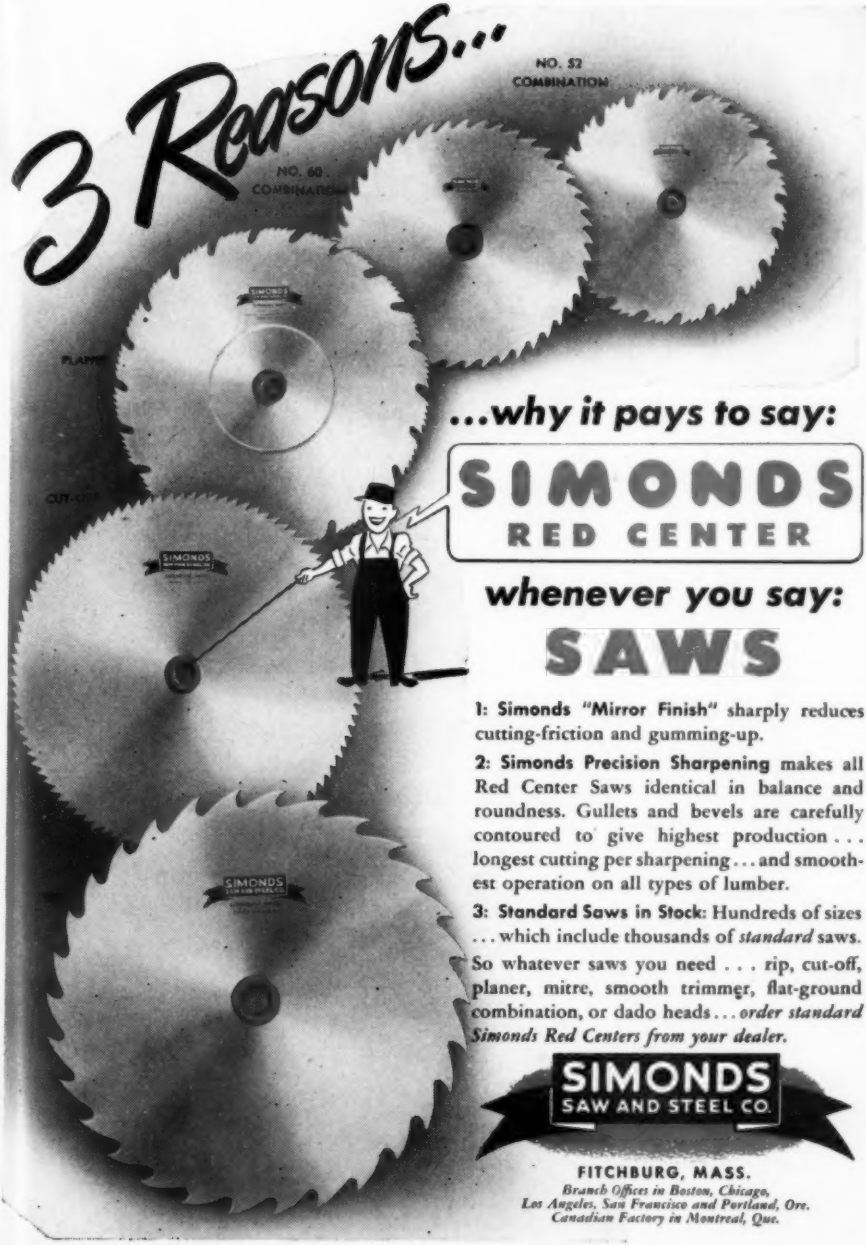
Plans for the September 22-23 meeting of the Association of Manufacturers of Woodworking Machinery include A. G. Bryant, president of the Bryant Machinery & Engineering Company, as featured speaker. His subject for this meeting, held at the Drake Hotel, Chicago, will cover the need for accelerated depreciation of machinery, as well as developments resulting from the current international situation.

MASONITE EXPANDS

Anticipating the opening of its new plant in Ukiah, Calif., Masonite Corp. has announced the expansion of its western sales division and the appointment of George M. Syversen as director of western sales. Eight states are in the western division. Customers in California, Oregon, Washington, Idaho, Utah, Nevada, Arizona and New Mexico, after the huge new plant gets into operation, will receive shipments from Ukiah. Their orders will be processed by the division sales office at 111 Sutter St., San Francisco.

REMINDER

The National Hardwood Lumber Association meeting is scheduled for September 26-28, 1950. This 53rd Annual Convention will be held at the Netherland Plaza Hotel, Cincinnati, Ohio. Convention plans promise worthwhile discussions.



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whenever you say:

SAWS

1: Simonds "Mirror Finish" sharply reduces cutting-friction and gumming-up.

2: Simonds Precision Sharpening makes all Red Center Saws identical in balance and roundness. Gullets and bevels are carefully contoured to give highest production . . . longest cutting per sharpening . . . and smoothest operation on all types of lumber.

3: Standard Saws in Stock: Hundreds of sizes . . . which include thousands of *standard* saws.

So whatever saws you need . . . rip, cut-off, planer, mitre, smooth trimmer, flat-ground combination, or dado heads . . . *order standard Simonds Red Centers from your dealer.*

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SAW AND STEEL CO.

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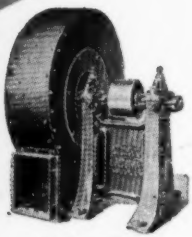
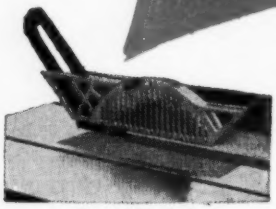
Branch Offices in Boston, Chicago, Los Angeles, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.

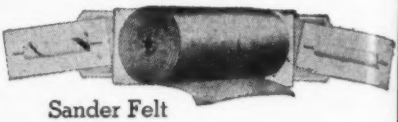
Full Lines of



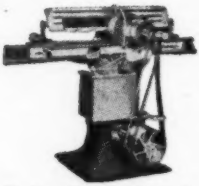
Exhaust Fans



Saw Guards



Sander Felt



Auto. Knife Grinder

Disc Grinder

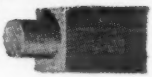
Oscillating Spindle Sander

Saw Mandrels

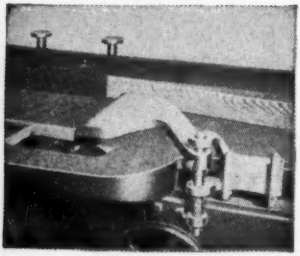
Wood Trimmer

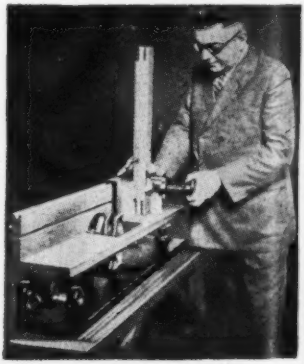
Mitre Machines

Chucking Arbor

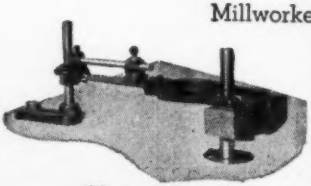


Jointer Guards





Millworker



Shaper Guards

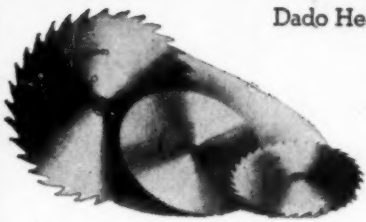
WOODWORKERS TOOL

NOW HANDLING NEW DE WALT ALL-PURPOSE

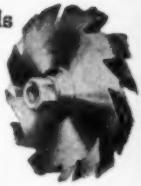
EQUIPMENT

FOR YOUR WOODWORKING SHOP

ASK FOR OUR LARGE, COMPLETE CATALOG

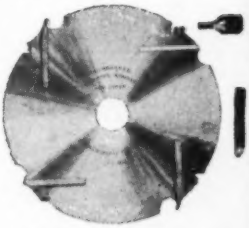


Dado Heads

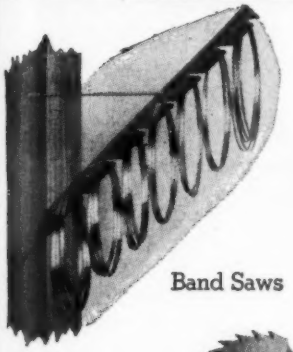


Circular Saws

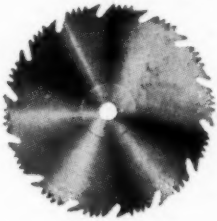
Champion Groovers



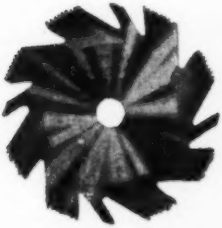
Inserted Groovers



Band Saws

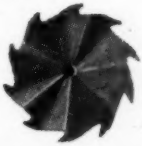


Planer Saws



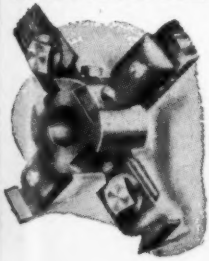
Patent Groovers

Rabbeting Saws

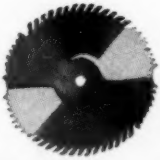


Common Groovers

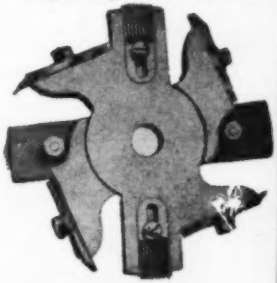
Expansion Dado Head



Mattison Dado Heads



Lamson Cutters



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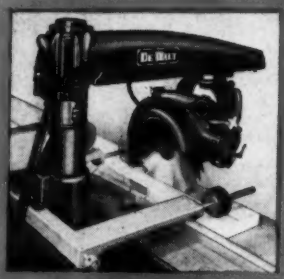
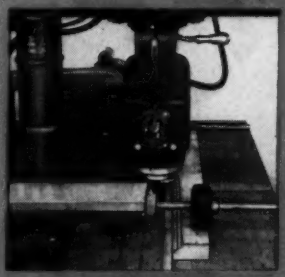
WOODWORKING MACHINES . . . TURN PAGE

New! DeWALT
SAFETY POWER FEED!



POWER FEED RIP



POWER FEED SHAPER

POWER FEED RABBETING

Here's a POWER FEED that you can own and operate at surprisingly low cost!

This Power Feed can be attached to any DeWalt machine quickly, and lifted out of the way, in a matter of seconds, leaving machine free for all the 101 DeWalt operations.

The Safety Power Feed is equipped with live rollers for both the in-feed and off-feed ends of the material. It can be adjusted for speeds up to 120 ft. per minute. It holds material firmly against the fence to insure accurate cuts—is adaptable for different thicknesses of material.

Most Power Feed Rip Saws can handle lumber *only* in a straight rip position. DeWalt's Power Feed can be used also to bevel rip at any angle, plough, groove, rabbet (straight or at an angle), shape and run mouldings.

Remember, this is a complete power feed unit, including motor, switch, 3-speed drive and hinge mounting for attaching.

The price is amazingly low—only $199.00 f.o.b. Lancaster, Pa. *Just 80 cents a day over a year's period.* If you do not own roller extension tables, one pair of rollers may be secured for $12.50 additional.

Write for full information about this new Power Feed now. DeWalt Inc., 49 Fountain Ave., Lancaster, Pa. Subsidiary of American Machine & Foundry Co., New York City.

DeWALT

YOU CAN HELP THE G. I.'s CHOOSE

The deadline for a G. I. to start training under the G. I. Bill of Rights is less than a year away, (July 25, 1951). **However, if he starts training before then and is called into service without finishing the course, he can complete studies after the war.**

How many men or women do you have in your employ—or whom you know in your community—who are G. I.'s and have not as yet taken advantage of the opportunity to better themselves through additional education?

There is a real opportunity for many of our readers to influence the thinking of any of these people to enroll before it is too late. Moreover, why not interest them in our own woodworking industry as a trade that will be both pleasant and profitable to them when they are properly trained.

Student putting finishing touches on a band saw jig at the Klok Institute.

We were talking to John Klok, president of Klok Institute, recently, and were very much pleased to learn of the success he had in placing many of his G. I. students. Particularly were we glad to know that most of them were placed before finishing their course and that the furniture and other manufacturers who employed them were very well pleased with their work.

Industry needs more trained young men and women and what better way can we help our G. I. employees or friends to be of more value to us and to themselves than by having them take advantage of the G. I. Bill of Rights.

An employer stands to lose nothing and gain much if he has his G. I. employee attend Klok's woodworking training school or take the home study course they provide. Where the place of employment is close enough, the student can arrange his classes so he can put in a substantial amount of time at work. If he takes a home study course he can be employed at the same time.

There are accredited schools for all types of instruction and regardless of what the G. I. cares to study, he can and should take advantage of this opportunity which may never be open to him again.

Then as a last factor we should like to mention what training does for the employee himself. Whether it is a bookkeeping clerk or an electrician, the man or woman who knows his work and has been trained for it is an asset

to the firm and a self-confident employee enjoying his work.

Of course, if you are urging your employees to take training there may be some sacrifice on your part. A man who goes off to take a six-month course should be reasonably certain of having a job when he returns to your firm. An employee who takes night school or correspondence work is worthy of commendation. When training and developed ability have been proved on the job, the employee will probably expect a raise in pay.

However, we believe that the advantages offered our G. I.'s are great and that in the longer view, industry itself will profit by trained men and women.

FOREST FIRE REPORT

Forest land under organized protection against fire reached an all-time high of 569,169,000 acres in the U. S. during 1949. In the same year the nation's forest fire losses were held to 15,395,740 acres, lowest in history.

These two facts, and their obvious relationship to each other, are stressed in a recent national forest fire report published by American Forest Products Industries of Washington, D. C., sponsor of the Keep American Green fire prevention education program.

"The outstanding 1949 record is a fitting and logical climax to a decade that witnessed unprecedented progress in forest protection and fire prevention," the industry sponsored organization states in a foreword to the report.

FLAT HEAD CAP SCREWS

The Bristol Company has published a folder about its recently announced line of flat head socket cap screws. The folder, Bulletin 881, gives full price information and specifications.

Copies are available from the Bristol Co., Mill Supply Division, Waterbury 20, Conn.

NORTH DAKOTA DEDICATES MORE TREE FARMS

Forty farmers were recently awarded Tree Farm certificates at Fessenden, N. D., in the state's second Tree Farm dedication.

All Tree Farms certified were of the shelterbelt variety. North Dakota, one of the 28 states with Tree Farm programs in operation, was the first to certify shelterbelt woodlots. Like all Tree Farms, shelterbelts must be managed in accordance with sound forestry practices.

BALDWIN TESTING MACHINE

The Baldwin Sonntag 60,000 lb. capacity Universal testing machine, Model 60-H, is completely illustrated in Bulletin 310. Operation, controls and accessories are explained in these four pages.

Baldwin Locomotive Works, Testing Equipment Dept., Philadelphia 42, Pa.

Appointments

Firth Sterling Steel & Carbide Corporation has announced the appointment of **R. D. Brooks** as woodworking development engineer in their Carbide Division. Prior to joining the Firth Sterling organization, Mr. Brooks was associated for 13 years with E. C. Atkins and Company.

R. D. Brooks

Paul H. Logan

Paul H. Logan is now head of the timber department of M and M Wood Working Company. His new position involves management of extensive timber tracts in Oregon and California.

R. Ross Hunnicutt has been promoted to the position of sales assistant to Reed P. Morse, southern sales representative for Malarkey plywoods and doors. Increased service to distributors and dealers in ten southern states will result.

R. Ross Hunnicutt

William E. Mettler

Boice-Crane Company, Toledo, Ohio, have appointed **William E. Mettler** of Pass-A-Grille Beach, as their Florida representative. Mr. Mettler has been with the firm, representing them in Michigan, for a number of years.

Only the best SAW SHARPENING can give you top-speed production. The Foley Saw Filer quickly puts old saws with dull and irregular teeth back in perfect condition — and keeps them perfect! 25% to 40% increase in production is frequently realized with Foley-filed saws.

ONE machine files cross-cut circular saws, band saws, hand saws.

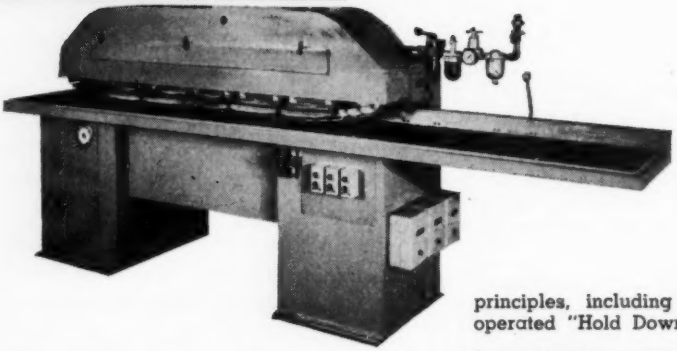
30 DAY TRIAL OFFER

permits you to use a Foley Saw Filer in your own shop. You can't lose on this offer—write or send coupon.

FOLEY *Automatic* **SAW FILER**

FOLEY MFG. CO.
3351 N.E. 5th ST.
MINNEAPOLIS 18, MINN.
Please send literature, and details of your 30-DAY TRIAL OFFER.
Name .....
Address .....

WHY NOT TRY THE NEW CONTINUOUS FEED VENEER JOINTER



Our New Continuous Feed Veneer Jointer we believe is far superior to any continuous Feed Veneer Jointer heretofore made.

It has several re-olutionary mechanical principles, including pneumatically operated "Hold Down" Shoes.

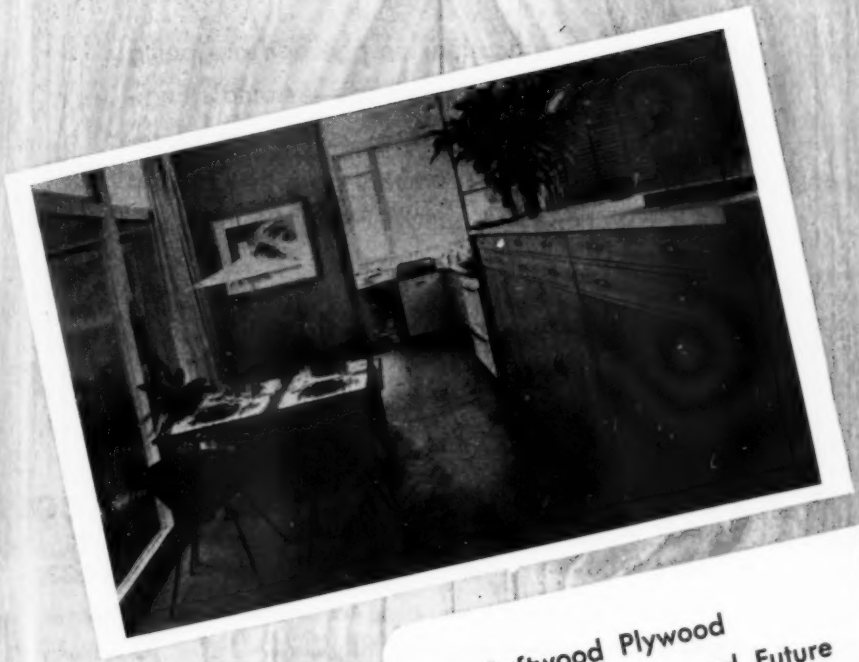
Its construction permits perfect work on extremely long stock, and it will joint successfully highly figured veneers such as burls, crotches, etc. The machine is equipped with a glue spreading attachment.

THE VENEER MACHINERY CO.

MAKERS OF THE DENNIS TAPING MACHINE

GRAND RAPIDS **MICHIGAN**

Veneer, Plywood and Laminated Wood Section . . . .



Features

The Softwood Plywood Market—Present and Future

Veneer and Plywood

AETNAPLY *Service*

Aetna's Plywood Engineers are ready to help you in the selection of material for your various needs. These men are in constant touch with manufacturers, industrial users, and technical advisory groups to keep abreast of grade and specification changes.

Government specifications on plywood are being frequently changed and revised — Aetna's Engineering Department Library maintains an up-to-date file on all Department of Commerce and Army-Navy Plywood Specifications. When you need plywood to fill Government orders, check with us, and we'll see that you get the right grade for your contract.

★ ★ ★

AETNA PLYWOOD & VENEER CO.

1737 N. Elston Ave. Chicago 22, Ill.
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BRANCH WAREHOUSES: Grand Rapids, Mich.; Rockford, Ill.; Indianapolis, Ind.

SALES OFFICES: Detroit, Milwaukee, Minneapolis; Richmond, Va.; Marion and West Lafayette, Ind.

The Softwood PLYWOOD MARKET... *present and future*

BY C. E. DEVLIN
GENERAL SALES MANAGER,
SIMPSON LOGGING CO., SEATTLE, WASH.

An attempt to analyze the principal markets for softwood plywood, those which may be expected to increase in the near-term future, those which may be expected to decline, and those which may be expected to maintain the status quo. Also some discussion of the markets which may be expected to increase substantially over the long term. A statement as to present production and projected increases for 1950. An analysis of the overall demand potential for softwood plywood based on market considerations, and certain business indices.

PINNING DOWN the markets for softwood plywood precisely continues to be an elusive exercise. This is so because the product has such a multiplicity of uses in so many markets. It is truly the wood of a thousand uses, and as the Douglas Fir Plywood Association has demonstrated on numerous occasions, these 1,000 uses can be cited in detail.

Fortunes of the softwood plywood industry are, obviously, tied closely to the fortunes of the building industry. But the building industry itself has many facets, and many forces working within it which are not always working in the same direction.

For instance, new house construction may (very often does) trend downward at a time when commercial and industrial building is rising. Thus, even within the category of building itself, it is hard to gauge demand as it may affect a particular industry, such as the softwood plywood industry. And building is only one component in the makeup of plywood demand.

As a contrast, the market for stock doors **can** be accurately measured and even forecast. The number of doors per house, for instance, can be predicted; the size of the replacement demand is fairly well known; the demand for doors in the farm market can be estimated; the demand in industrial and commercial building is also rather easily pinned down; and, inventory demand can be determined by periodic sampling. Therefore, it is possible to know within narrow limits how many doors are being consumed at any time, and what the prospects are for the immediate future. There are simply no other markets for stock doors, and fluctuating prices will have little affect on basic demand.

But, in the case of softwood plywood,

delineating markets and measuring demand is no such easy matter. One of the large markets for the product falls outside the building industry, and is that segment known broadly and loosely as the "industrial" market. Industrial uses are typically "cut-up" uses where the plywood becomes a part of another item of merchandise. Furniture is a typical example of an industrial use of softwood plywood, and millions of feet have gone into such items as radio cabinets and now television cabinets.

As a matter of fact, the industrial market at one time undoubtedly was the largest market for softwood plywood. In the 20's panels were used widely in the automotive industry for floor boards, door panels, instrument panels, trunk bottoms, running boards, and similar uses. Today for many reasons the automotive demand is a relatively small part of the overall industrial demand for softwood plywood.

A Breakdown of the Markets

A study of softwood plywood markets made by the staff of the Association and following accepted statistical methods indicated that roughly 45 percent of the production of softwood plywood went into industrial uses, and 55 percent into construction uses, of which 40 percent was housing, and 15 percent heavy construction. These studies were made at the time plywood was being produced at a rate slightly less than 2 billion sq. ft. per annum. That this percentage still holds now that the industry is running at an annual rate of about 2½ billion sq. ft. is extremely doubtful. There is evidence that the balance has swung more heavily toward construction uses because of the continuing high level of building.

These are the major markets, if awkwardly classified. In general, it is impossible to state the exact footage that is going into any of these markets and in many cases even the trend is difficult to perceive because of the lack of accurate data.

I. Industrial markets
- Railroad
- Automotive and other transportation
- Furniture and luggage
- Displays and signs
- Store fixtures
- Packaging and crating
- Millwork and doors
- Templates
- Toys and games
- Pallets

II. Construction markets

A. Housing
- Subflooring
- Wall sheathing
- Roof decking
- Exterior siding
- Soffits
- Gable ends
- Interior walls and ceilings
- Built-in cabinets and millwork
- Base for resilient floor coverings

B. Heavy construction
- Concrete forms
- Protective fencing
- Gussets
- Trench sheeting
- Beams

C. Farm construction
- Grain bins
- Silos
- Hog houses and feeders
- Chicken houses
- Barns
- Dehydrators

D. Marine construction
- Planking
- Decking
- Bulkheads
- Cabins
- Thwarts
- Knees
- Tanks, bait and fish
- Hatch covers

Where the Trend is Upward

For the near-term future, however, it can be predicted safely that the following markets will be growing in importance for plywood, both in footage required, and as a percentage of total plywood produced: furniture, displays and signs, store fixtures, pallets, concrete forms, protective fencing, exterior siding, subflooring, railroad car construction.

Reasons for these predictions are not academic, but are based largely on present and predicted activity and the state of competition within those markets. For instance, a continued high level of heavy construction, particularly

public construction, and the amount of concrete work that will be needed, is the basis for the prediction that the demand for plywood for concrete forms will increase. In this field softwood plywood has virtually no competition.

Demand for plywood as exterior siding, as another example, is sure to increase because of the continued decline in availability of wide boards. Plywood will serve as a substitute for wide boards in both residential and commercial construction.

Where Declines May Come

Near-term declines in demand for softwood plywood can be expected in the following markets: farm construction, interior walls and ceilings, marine construction, packaging and crating.

A decline in use of softwood plywood in farm construction is predicted largely because farm income is sure to decline and competition will be keen, with plywood at some price disadvantage.

Price levels also are basic to the prediction that interior walls and ceilings will be of relatively less importance to plywood in the months immediately ahead. The same applies to packaging and crating.

Other markets can be expected to maintain present importance for the near-term future.

In looking ahead to the long-term future the only safe prediction is that some markets will become tremendously more important than they are now. These are the markets in which plywood's peculiarly advantageous physical properties (i.e. strength with light weight, large sizes, durability and workability) combine to produce attractive cost savings, particularly labor savings, or important design and aesthetic results. Use of plywood for subflooring is an illustration of a use—important because of inherent labor savings. Use of plywood for exterior siding is an illustration of a use which will become more important largely because of design considerations.

Some Markets Easily Forecast

The size of certain markets for softwood plywood can be measured rather precisely and forecasts for the future made. One of these is the tobacco hogshead market, which, because of the limited number of users and the precise planning that goes into this use, can be figured accurately. It will account for about 30 million sq. ft. annually for the next few years.

Another market that lends itself to an accurate analysis is the use of softwood plywood for railroad car construction, particularly freight cars and refrigerator cars. The total demand for plywood in the railroad market is, however, pretty much of a conundrum since there are dozens of items such as track shims, journal dust guards, portable buildings, and many other miscellaneous uses that add up to considerable footage, but are hard to pin down.

Still a third market that can be estimated accurately is the use of softwood plywood in stock door manufacture. It is known that the average panel door requires 10 sq. ft. of ¼-inch plywood, and the average flush door requires 30 to 35 sq. ft. Since the production of panel doors and flush doors is easy to obtain, this market can be gauged accurately. In 1949 the demand for door panels represented a market for about 125 million sq. ft. of softwood plywood, on a ⅜-inch three-ply basis.

More Variable and Unpredictable Markets

At the other extreme, i.e., markets for softwood plywood that are almost impossible to measure, are most of the uses for plywood in house construction. As yet no particular pattern has formed, and an average figure representing the plywood consumed per sq. ft. of floor

area would be meaningless. Consumption of plywood would vary with the design of the house, the type of construction, the climatic conditions, and so many other variables that averages except over long periods of time would be of little value to the market statistician.

For instance, a builder in one area might use softwood plywood for subfloors and nothing else. Another builder producing almost the identical house might use panels for outside siding, for soffits, and for gable ends, but **not** for the subflooring.

Still other builders will use plywood only for the millwork in a house, and not for any of the structural elements.

It is likely that over a period of years these housing uses will settle into a pattern, particularly when price levels become more stabilized and design trends are more evident. When this occurs, building products will seek their normal and natural markets, and the distortions that have been inherent in the years of shortages will disappear.

For instance, it is now becoming clear that in many areas of the United States $\frac{5}{8}$-inch or $\frac{3}{4}$-inch plywood is becoming the standard subflooring material. The labor savings inherent in the use of large sheets of plywood, as compared with competitive items, are so great that relatively wide fluctuations in the price of plywood, or the price of the competitive material, seems to have little effect on the demand for plywood in this market.

Another demand that seems to be conforming to a pattern has been influenced by design. Use of a wide overhang in house construction in many areas has led to an increased use of plywood for the soffits, and this is apparently a market also that plywood can serve because it has almost no competition.

Demand factors have not crystallized, however, in the use of plywood for wall and roof sheathing, outside paneling, or inside walls and ceilings. In these markets competitive factors are still very active, and softwood plywood demand is sensitive to price changes, to changes in design preferences, and to such artificial blocks as building codes, local labor requirements, and other sectional prejudices.

As an illustration of this, 5/16-inch plywood can serve adequately as wall sheathing, but the price factors are normally in delicate balance. If the plywood price goes up rather substantially, and the competition, which is usually boards, remains stationary, the cost-conscious builders will switch from plywood to boards. In some areas also building codes have ruled out the use of 5/16-inch plywood, although protests have been registered and it is likely that this situation will be changed.

Another illustration is the matter of design preference. In the so-called modern or contemporary design, there is little prejudice against large panels for exterior siding; and, in fact, for many architectural effects, wide panels have an aesthetic advantage. Furthermore, there is a long-range trend in favor of plywood for siding material because of the growing scarcity of wide boards. Ultimately, it may be that plywood will have to fill this demand, and if the design preference is for 16-, 18-, or 24-inch boards, the standard 4 by 8 panels will be cut to those dimensions. Even now this is being done regularly.

The Need for Reliable Market Figures

Summing up, it can be said that the market statistician finds it very difficult at this stage to reduce plywood demand and plywood markets to reliable square footage figures. For almost 12 years, from 1938 to 1950, the need of such figures was largely academic. For a

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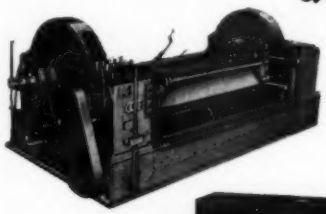

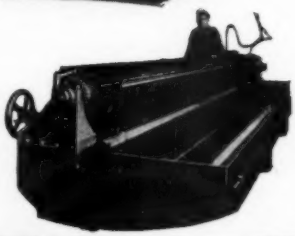

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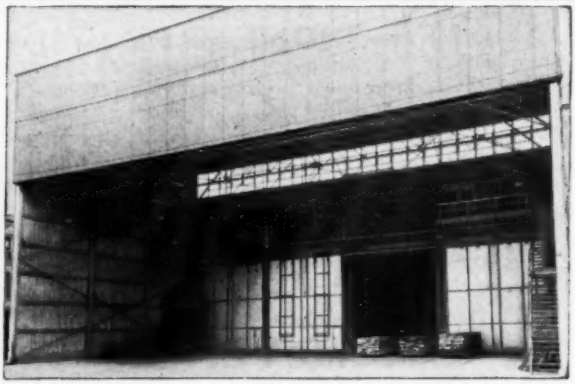

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period from January to August, 1949, when effective demand appeared to be lower than available supply, the desirability of such market information was spotlighted.

Parenthetically, even during that period in 1949 end-use consumption of plywood was proceeding with only a slight drop off in intensity. Certainly the decline in demand at the consumer level was nowhere near the decline registered at the wholesale or manufacturing level. This was evidenced by the fact that during those months stocks in the hands of distributors and dealers were reduced virtually to zero. Furthermore, when the turn-around came in August and confidence had returned in distribution channels orders flooded back to the mills in a volume that sent order files to all-time peaks. This condition still applied throughout the first quarter of 1950, despite the fact that production had increased substantially

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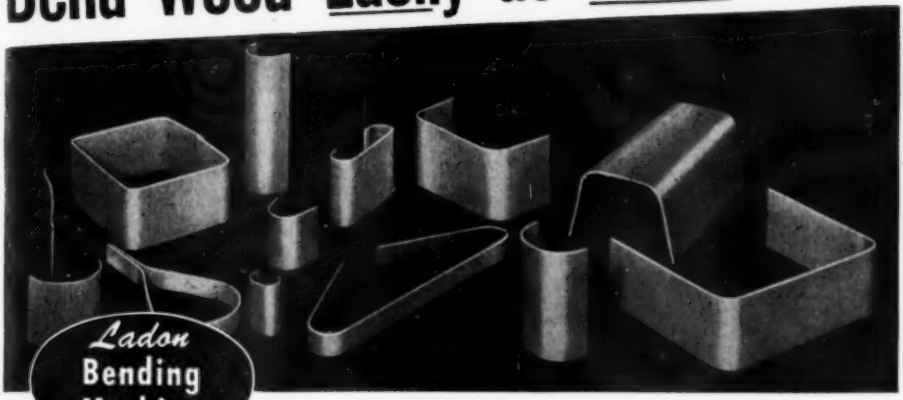

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and is currently running at a level higher than 50 million sq. ft. per week. This is by all odds the all-time peak production. If maintained for the balance of the year, 1950 production will show a 25 percent increase over 1948 and 1949, which in themselves were boom production years.

Current Production

This may be the point at which production figures should be introduced, since it is the contention that the demand for Douglas fir plywood, at existing price levels, is sufficient to take care of the entire present and projected capacity of the industry.

Following is the production of Douglas fir plywood for the weeks of 1950 reported by the Douglas Fir Plywood Association:

Week of	Square Feet 3/8-Inch 3-Ply Rough Basis M Sq. Ft.
January 7	34,237
January 14	42,108
January 21	35,958
January 28	42,894
February 4	34,317
February 11	39,538
February 18	44,755
February 25	47,887
March 4	46,770
March 11	47,837
March 18	48,464
March 25	50,155
April 2	50,400
April 8	48,467

Four additional Douglas fir plywood plants will soon be adding to the figures above; and, when they are rolling smoothly, new plants should add another 2,500,000 sq. ft. to the weekly totals. Thus, by July 1, Douglas fir plywood production may be running at the rate of at least 53,000,000 sq. ft. a week.

In addition to Douglas fir plywood, soft-wood plywood volume is increased by a considerable production of pine plywood, and by some production of minor species. Pine plywood is, of course, the predominant other softwood

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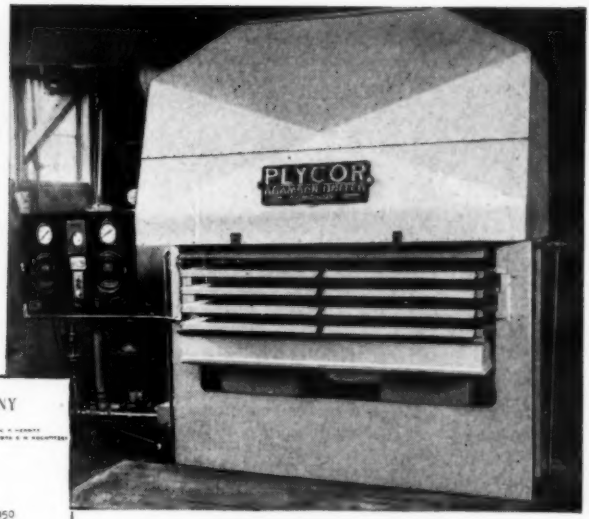

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plywood produced. Although figures by weeks are not readily available, it is estimated that production is about 2¼ million sq. ft. per week based on an estimated annual production of 115 million sq. ft. per year on a ⅜-inch basis.

These figures added to the Douglas fir plywood figures would give a total softwood plywood weekly production by July 1 (assuming a continuing demand of 55 to 56 million sq. ft. per week), of 230 million sq. ft. per month, or a yearly rate of 2,700,000,000 sq. ft. annually.

Market vs. Production

The question now is, "Are there markets sufficient to absorb this volume of production in normal times?"

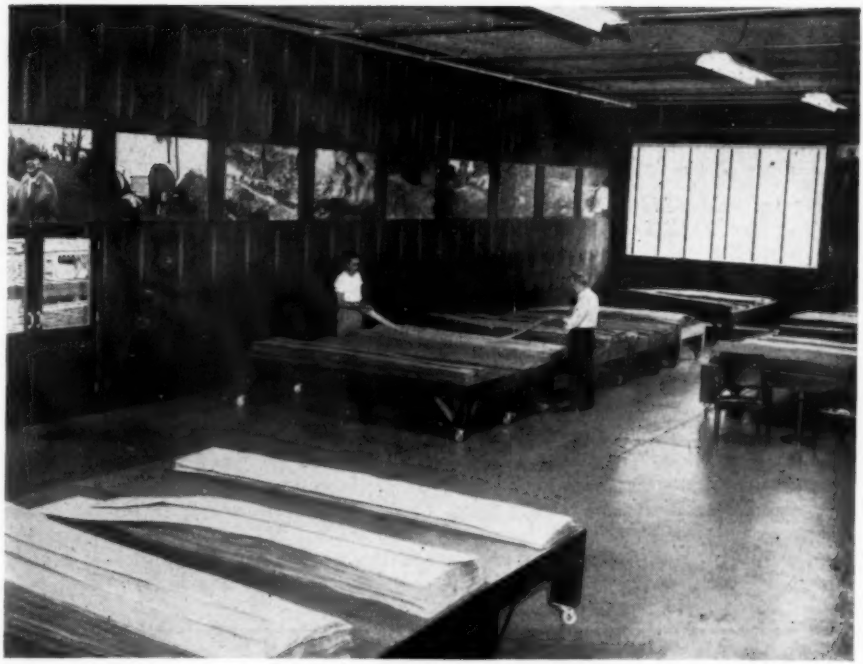
It is obvious that no one knows the answer to this, for no one yet knows the answer to the question: "What is normal post-World-War-II business?"

But there are means of calculating whether or not there is sufficient demand from the plywood markets to absorb the increased production.

Studies relating plywood demand in a normal pre-war year, 1940, to certain indices such as "Sales Management's" measure of general business activity, new house construction, and total construction have been carried on for a number of years.

If the demand for plywood in 1940 resulted from a combination of certain factors in consumer buying income, general business activity, new house construction, and total construction, those same relationships should exist today, assuming that competitive conditions remain the same, that price levels are consistent (that is, they would be higher, but in the same general relationship) and assuming that there have been no great basic technological changes in construction, in labor usage, and in the quality of the product itself.

That assumption, of course, is a very wide one, and probably could not be



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defended successfully for lack of factual evidence.

However, these studies, though crude, do give every indication that a relationship exists between plywood demand, and the level of general business activity and construction.

Furthermore, there are ways of correcting the relationships to eliminate the errors in the basic assumptions, particularly in the matter of changing price levels. It is possible to determine accurately the changes that have taken place in the price level for plywood, as compared with competing materials and as compared with the general wholesale price levels.

Annual plywood demand as derived from these calculations exceeds 2 billion 800 million sq. ft., based on the maximum adverse effect of price increases, and minimizing the expansion of plywood markets that has taken place during the war and postwar periods.

Recognizing that these are rather crude studies, the industry in the fall of 1949 retained Dr. Charles F. Roos of the Econometric Institute of New York City to refine and revalue the demand factors.

It was interesting to note that Dr. Roos' preliminary figures, as released in November 1949, showed a conservative demand figure for 1950 of 1 billion 800 million sq. ft. In his analysis in February, 1950, Dr. Roos warned that the studies were still preliminary, but that it was becoming increasingly evident that plywood was indeed a growing industry and that the rate of growth was again accelerating following the lull during the war and postwar periods.

It is believed, therefore, that the use of refined statistical methods by Dr. Roos ultimately will provide the industry with a dependable series of demand statistics, based on the expanded post-

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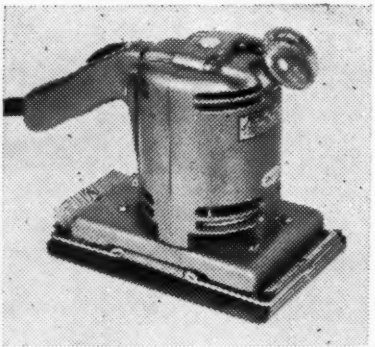

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war markets for softwood plywood.

Some Predictions

It is safe to predict now, that barring a major depression, which would affect plywood and virtually every other industry, the plywood industry can look forward safely to selling its production, based on the optimum capacity figures mentioned above. The only other qualification is one of price levels.

Softwood plywood cannot expect demand to continue without regard to price levels. The industry discovered that very dramatically in late 1948 and 1949, when demand pushed prices far out of line with the general level of prices for building commodities, and particularly far out of line in relation to the competitors of softwood plywood, excepting lumber.

Lumber is, of course, the major competitor of softwood plywood in most markets, and the price levels in lumber went as high proportionately as did the price levels of softwood plywood.

Softwood plywood prices had increased almost 200 percent by 1948, as compared with 1939. In 1949 the prices declined abruptly about 35 percent from the high to a point not much more than 100 percent over the 1939 figures.

Parenthetically, it must be pointed out that in most of this discussion the figures are those of Douglas fir plywood because it is the volume item, and also because statistics are more readily available for this species. It should be pointed out that this discussion of prices is not necessarily typical of ponderosa pine plywood, since the price levels of the latter did not decline as drastically as did those for fir plywood in early 1949.

From the low point in price levels reached during August of 1949 prices of fir plywood have increased about 25 percent, or to a point about 140 percent

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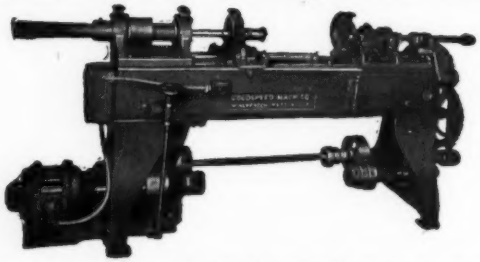

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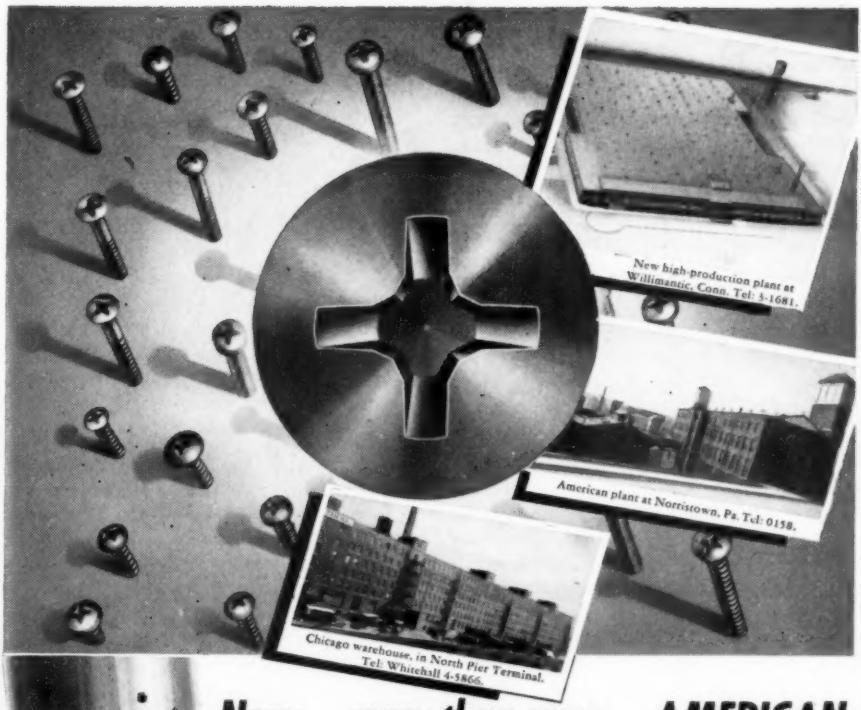
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above the 1939 price levels.

At present price levels it is obvious that plywood is not out of line with its principal competitor, lumber, nor with the general price level. If the prices remain at this level, the demand figures should be accurate.

Price and Competition

Plywood prices, compared with certain important competitors such as hardboard, gypsum wallboard, or even insulating board, are not favorable. Only the overwhelming advantages of the material in its adaptability to so many different uses makes it a preferred item for the building material dealer. The versatility of plywood panels is, in fact, the key to the problem of demand.

Plywood competes with lumber in the subfloor of a house; it competes with hardboard in furniture and many other industrial uses; it competes with plaster, with gypsum wallboard, with insulating board, and with hardwood plywood for interior walls and ceilings; it competes with the highest grades of lumber in marine construction; it competes with steel and aluminum in many farm uses, particularly grain bins; it competes with metal in railroad car construction; it competes with oak staves in tobacco hogsheads; it competes with metal and with lumber in cabinets and mill work. This list could go on and on.

But, the product has no single competitor for all its uses and no one product on the horizon can challenge its versatility as yet. As "Fortune" magazine has said, plywood is the nation's most versatile building material; the one that can do more building jobs than any other.

It is the sincere belief of many men in the industry that the markets for softwood plywood will be limited largely by available raw materials.

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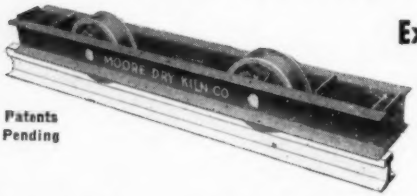

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Service That Sustains Markets

Finally, in any discussion of markets it is important to point out that the softwood plywood industry has been fortunate in having invested substantial sums of money in quality control, advertising, promotion, field service, and research. Without this intelligent, sustained effort devoted to the cultivation of existing markets and the development of new markets, the growth of the markets for softwood plywood would not have been as rapid, nor as solid. The Douglas fir plywood industry, through its association is now spending upwards of $1,000,000 a year on these various activities.

In addition, individual companies within the industry are spending additional sums on advertising, promotion, research, and general sales effort, with the result that the industry overall is doing a fine job in the development of its markets.

Summary

In conclusion, these points may be summarized:

1. The analysis of the plywood markets in 1948 indicated that the markets were 40 percent house construction, 15 percent heavy construction, and 45 percent industrial uses. These percentages are changing materially as production increases. More plywood percentagewise undoubtedly will go into housing. A survey of 1,000 builders showed that during 1948 the average builder used less than 400 sq. ft. of softwood plywood per house. Undoubtedly this low footage was due to unavailability of the material. As the material became more readily available in 1949 and early 1950, through increased production, a great expansion in the consumption of plywood in housing occurred, for a large latent demand existed. Last year probably 100 million sq. ft. went into prefabricated housing, and this percen-

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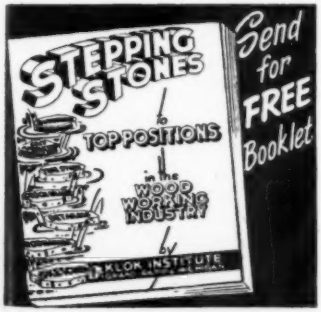

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tage, too, will increase as the material becomes more available. The volume going into prefabricated housing in 1950 could well approach 200 million sq. ft.

2. There are certain markets that can be accurately measured, and others that cannot. For example, in prewar years the volume of plywood used for concrete forms could be rather accurately determined because the industry produced a specific grade for that use. Today, while there is still a concrete form grade of plywood produced, it cannot be taken as an accurate gauge of the amount of plywood used in concrete form construction because many other grades, particularly exterior types of plywood, are also used in form construction.

3. There are methods of measuring the size of markets and over-all demand for softwood plywood, by relating them to certain indices, particularly new housing starts, total construction, and general business activity. These statistics are particularly important in determining market potentials in any particular state, or in the 63 major trading areas in the United States.

4. As a means of refining these measures of demand, Dr. Charles F. Roos of the Econometric Institute is making additional statistical studies for the industry, but the results so far are preliminary.

5. Production of all softwood plywood is currently running in excess of 52¼ million feet per week, and by summer will be at least at the 55¼ million foot per week level.

6. It can be predicted that the markets for plywood will absorb this production if (a) general business conditions remain on a fairly even plateau, and (b) there are no substantial plywood price increases in the near future.

This paper was originally presented at the 1950 meeting of the Forest Products Research Society.

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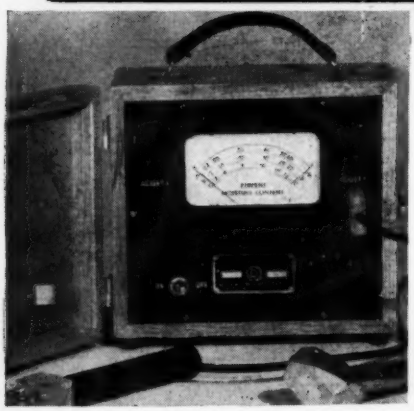

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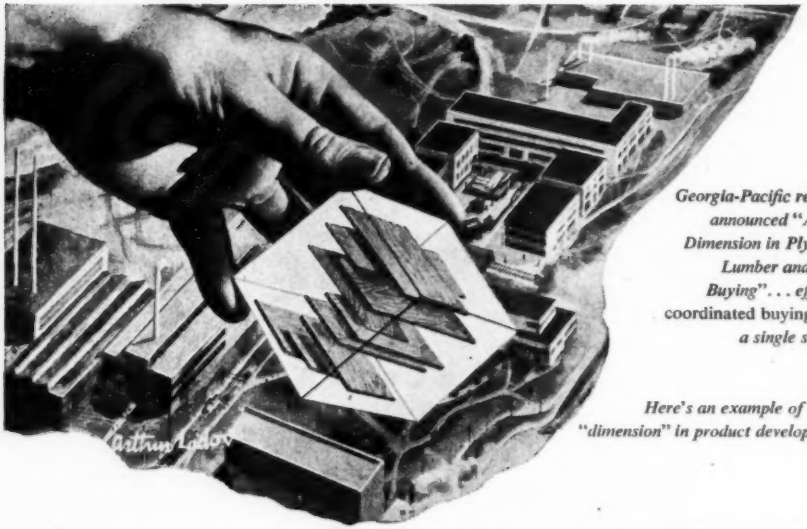

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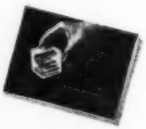

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Veneer and PLYWOOD

By Ned Bailey

This is the second part of our glossary of trade terms. The first part appeared in the August issue. It is our plan through this series of articles to acquaint our readers with the uses, production methods, materials and machinery used in manufacturing and utilizing plywood.

Extender: an additive often combined with adhesive resins to give it special value such as providing body or reducing cost.

Exterior D.F.P.A.: Douglas Fir Plywood Association grade designation for plywood made with waterproof adhesive and to be used for permanent exterior exposure.

Face: the veneer used on the exposed side of plywood usually carefully selected and matched where attractive appearance is required. When location or use demand, face veneer is used on both sides.

Figure: pattern formed by eccentric arrangement of the elements within the tree and by reflected light caused by this arrangement of the wood fibres, and by exposure of the medullary rays. Figure may also be caused by inherent coloring matter. Birdseye, burl, crotch, blister are a few of the better known figure types.

Filler: see extender.

Film: liquid adhesive coating, or a thin, dry sheet of paper coated both sides with a phenol-formaldehyde type resin adhesive.

Flake, (broken): breaking or loosening of the (medullary ray) flake of quartered cut or sawn veneer, frequently found in oak veneer.

Flat grain: veneer cut so the growth rings meet the face over at least half the width at an angle less than 45°—also called palin cut, flat sawn, slash grain.

Flexwood: trade name for cloth backed thin veneer.

Flitch: sheets of veneer, kept together in cutting sequence so that adjacent sheets will have similar figure for matching. Also the piece or segment

of a log from which veneers are cut.

Flush door: one of uniform thickness and flat surfaces, cores may be hollow, of edge and end glued lumber or they may be solid. Sometimes called slab doors.

Gap: open splits in the inner ply or plies or improperly joined veneers when joined veneers are used for the inner plies.

Glue: a term often confused with adhesive—glues are all adhesives but all adhesives are not glues. Today glue is a name usually applied to the older type, conventional cold setting plywood and woodworking adhesives although this use of the word may be already obsolete by the time you read this.

albumin glue: or soluble dried blood, as now used for adhesive purposes, is mixed cold and usually set (or coagulated) under heat or by chemical reagents. Although highly water-resistant it is not used to any great extent. Albumin is also used with other adhesives as an extender.

animal glue: a derivative of bone and hide waste, ordinarily prepared by cooking. Best applied in a warm room with glue solution at about 140°F.

casein glue: a dried milk product, mixed cold with lime, a sodium salt and other ingredients.

liquid glue: a prepared liquid adhesive or cement with many kinds having fish by-product base.

silicate of soda glue: a derivative of soda ash and sand used with other ingredients for low cost plywood.

soybean meal glue: what is left after the oil has been abstracted from the soybean is mixed cold with caustic, lime and other materials.

vegetable glue: a starch product that ordinarily has a cassava root flour base, is prepared by cooking with caustic then cooled before use.

Glue joint: the part of a composite wood product which is made up of the adhesive and the wood parts which are in contact.

Grain: the general direction or arrangement of fibres, and other wood elements, or the figure which is produced thereby on the surface of the sawn wood.

Grain character: cutting through growth rings, exposing various layers produces a varying pattern. It is most pronounced in veener cut tangentially or rotary-cut.

Grain rupture: veneer with slight breaks from improper cutting or irregular grain.

Growth ring: a ring added to the outer portion of the tree, just under the bark. This ring is made by the layer of wood of spring and summer growth.

Hair line: a line thin, though perceptible, that generally shows at a surface joint.

Half round: veneer cutting to emphasize the figure accomplished by rotary type cutting except that the flitch is secured on a stay log—a device permitting cutting of the wood on a wider sweep than when mounted on the lathe center.

Hardwoods: generally designates lumber or veneer made from broad-leafed or deciduous trees as opposed to the so-called softwoods produced by evergreen or coniferous trees.

Head block: a large piece of laminated lumber 3 to 5 inches thick, used during pressing and clamping time for top and bottom of plywood bales. Often made of veneer crossings. Also known as retainer board.

Heartwood: occuring usually in the tree center, of a darker color, more dense, more decay resistant, and less resilient than sapwood.

Herringbone figure: a method of matching, usually with quartered oak

Pictured First Page This Section
Dining area in the exhibition plywood house in the garden of the Museum of Modern Art, New York City. The low storage wall at the right has a top of gray Micarta. At the rear is a Weldwood walnut plywood sliding door.

veneers of angling grain, alternate joints show a V effect and an inverted V effect shows upon intervening joints.

High-density plywood: made at high specific pressure of 500 pounds and up with which comes like increase in density or specific gravity.

High-frequency heating: heat generation with molecular friction in a field between electrodes of high-frequency electrostatic currents, also referred to as diathermic, electrostatic, electronic and radio frequency heating.

Humidity (relative): the relative amount of moisture in air, compared with dry air. (Don't confuse with moisture content.)

Immersion test: in which samples are immersed continuously in water over designated periods of time.

Impreg: trade name for impregnated wood.

Impregnant: usually a synthetic phenolic resin used to fill voids in wood structure to add strength, durability and dimensional stability.

Incipient decay: an early stage of decay caused by wood-destroying fungi.

Jicwood: trade name for compregnated wood.

Joint (glue joint): the contacting line between the edges, surfaces or ends of two abutting pieces of wood.

butt joint: square, at right angles to grain in face veneer or other wood layers.

edge joint: parallels the grain of the wood, generally square, however, it is occasionally tapered at an angle.

joint glue: any adhesive usable to adhere edges, ends or surfaces to one another.

lap joint: where the edges or ends overlap without scarfing.

open joint: where the two adjacent pieces of veneer do not fit tightly together or an opening is visible and is considered a defect.

plywood joint: the surface where layers of veneer and/or lumber are bonded with an adhesive or glue.

scarfed joint: in veneer, plywood and lumber, an angling or beveled joint where the pieces are spliced together. The scarf is usually 10 to 20 times the thickness of the material. Such joints have almost the strength of the material itself.

starved joint: indicates an inadequate amount of adhesive or glue at the joint.

sunken joint: depressions (usually small) in plywood surfaces immediately above joints in the lumber core or crossbanding.

Kerf: the width of the slit or notch made in saw cutting.

Kiln: heating equipment used to remove moisture from veneer, plywood and lumber.

Knots: point of insertion of a branch in a tree trunk which is evident in cross section because the grain usually runs at an acute angle to the piece in which it occurs.

loose knot: a dead knot shrunken away from the surrounding wood.

open knot: where all or a portion of the knot has dropped out, or where cross checks create an opening.

pin knot: small (¼" or less) usually sound.

Laminated wood: made up of wood in layers whose grain or fibre is parallel in contacting layers, whereas in plywood the direction of grain or fibre in the contacting layers alternates parallel and across.

Lap joint: see joint, lap.

Lathe: a machine used to cut half-round and rotary cut veneer.

Layer: a ply or sheet of veneer or lumber.

Lay-up: assembling the layers of veneer or lumber after the adhesive has been applied or inserted before pressing and in molded plywood when the adhesive coated veneers have been wrapped around the mold preparatory to cooking.

Liquid glue: see glue.

Log pond: the water storage pond or reservoir where logs and blocks are kept, generally adjoining the mill.

Longwood: flitches of veneer of greater length as compared with short pieces such as burls, butts, crotches, stumps, swirls, etc.

Loose knot: see knots.

Loose side: that side of veneer into which the blade enters when the veneer is being cut by a knife, the veneer on this side curves away from the knife causing small ruptures.

Lumber core: where the central layers of lumber are usually ⅜ inch or more thick and made up of edge-glued strips 2 to 3 inches wide.

Mandrel: see mold.

Matching: placing adjoining sheets of veneer together to form a certain pattern.

book matching: turning over alternate adjacent sheets of veneer book fashion.

diamond matching: striped veneer cut at such an angle that when four sheets are laid together properly they form a diamond design.

four-piece butt: butt or stump veneer is trimmed to square corners at the place where the best figure occurs. Four adjacent sheets are then placed together with the best figure of each in the center.

reversed: where every other sheet of veneer is turned end for end.

slip or slide matching: lay adjacent sheets of veneer tight side up without turning.

Matrix: see mold.

Melamine: see resin, urea.

Mismatching: where adjacent portions of veneer do not come together symmetrically on a plywood panel.

Mixer: an open vessel with a tapering vessel that is equipped with revolving blades used for stirring adhesives, glues, etc.

Moisture content: the amount of moisture in lumber, veneer or plywood expressed as a percentage of its oven-dry weight.

Mold: usually made of sections of softwood glued together and accurately shaped, occasionally made of plywood, metal, concrete or plaster, may be of either male or female type. In flexible bag work the matrix upon which the plywood molding is to be done. Mold is also called a mandrel.

Molded plywood: curved plywood construction where pressure is exerted by a flexible bag.

Monocoque: in aircraft, a frameless stressed shell construction generally made of molded plywood.

Mottle figure: a mottled appearance caused by variations in the arrangement of the fibre growth.

Open joint: see joint.

Panel: a sheet or piece of plywood.

Panel door: where the stile and rail framework is thicker than the more central panels.

Patches: sound wood inserted and glued into veneer sheets or plywood panels,

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after defective portions are removed.

Pattern: occasionally used to describe a mold.

Peeler: a log suitable for cutting into rotary veneer.

Phenolic resin: see resin.

Pick-up: the weight increase, in per cent, over dry wood, due to the presence of the cured resin, used in connection with plywood impregnation.

Pin hole: made by pin-hole borers, usually round and not larger than 1/16 inch diameter.

Pitch pocket: an opening between the annual rings of a tree containing an accumulation of pitch.

Pitch streak: an excessive accumulation of resin in the form of a streak which sometimes occurs in the wood of certain conifers.

"Plastic plywood": plastic surfaced plywood obtained by self bonding overlays of resin or by gluing on a precured surface sheet.

Platens: the heat bearing plates of a hot press.

Ply: a layer or sheet of veneer.

Plyform: trade name for concrete-form plywood made with an adhesive that is highly water resistant, and whose surfaces are mill oiled and edge sealed.

Plymetal: plywood having metal sheets for one or more layers.

Ply panel: trade name for sanded plywood that is finished on one or both sides.

Plyscord: trade name for unsanded utility plywood having defects that do not seriously affect strength and serviceability. One face usually patched tight.

Plywall: trade name for wall-board grade that has one side sound and the other permitted to have defects that do not affect strength or serviceability.

Plywood: a product made of a number of layers of veneer and/or lumber and adhesive, the alternate cross layers of which distribute the longitudinal wood strength. Not to be confused with laminated wood which ordinarily has no cross layers.

Polymerization: a process which builds up the molecular size by adding together the molecules of the resin. The thermosetting resins used as plywood adhesives usually cure by a combination of both polymerization and condensation, often referred to as the cure of the resin.

Press, cold: a screw or hydraulic press in which the glued members are pressed or forced together. After removal from the press, pressure is maintained by clamping the bale or bundle of glued members between head blocks with clamp irons and turnbuckle rods.

hot: multi-platen hydraulic press, with plates or platens heated by steam, thermosetting resin adhesives usually used. Coldwater connections are provided for circulating water for cooling in the steam areas when thermoplastic resins are used.

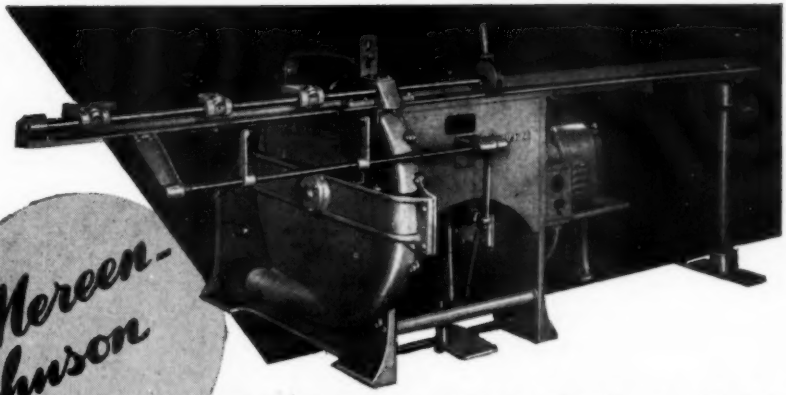
hydraulic: where in-pump pressure is supplied to the hydraulic-press pistons or rams, which usually operate upward when closing, accurate regulation of pressure can be maintained.

screw: here the turning of a screw or nut, either manually or mechanically, supplies the pressure needed to bond the layers of veneer and/or lumber into plywood or laminated wood, this type press is used for cold pressing only and it is difficult to regulate the pressure.

Pressure: variable, regulated by how and to what extent it is applied.

fixed: exerted by rigid clamps; when set, does not allow for yielding of wood.

flexible: made by the inflating or de-



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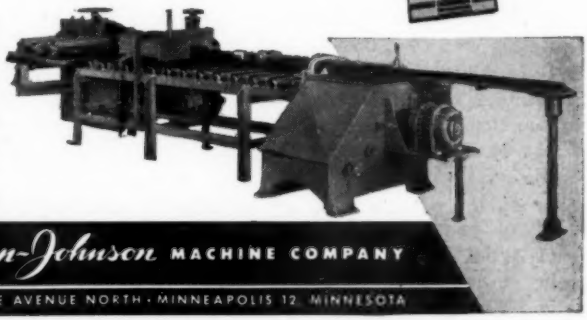

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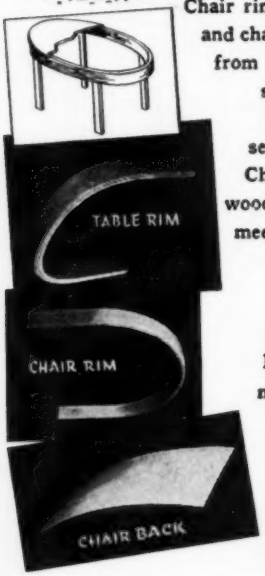

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flating of a flexible bag.

fluid: exerted perpendicular to a tangent on any concave or convex surface, usually steam, compressed air, hot water or a combination of any of these or other fluids or gases are used.

follow-up: compensates for yielding of glued assembly as its power can be maintained uniformly.

molding: see flexible.

omnidirectional: see flexible.

piston or pump: the pressure of the liquid medium in a hydraulic pump and press pistons and indicated on pump pressure gauge.

specific: the surface pressure on the plywood as related to the pump or piston pressure and is equal to the pump pressure multiplied by the result obtained by dividing the square inch area of the plywood into the to-

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tal piston area in pounds.

Primary gluing: wherein veneers are glued into plywood.

Progressive gluing: when a plywood dimension is too large to be accommodated in the hot press it is glued in two or more stages. The first section to enter the press is cured, the press is opened, the plywood moved in and the second area cured, and so on.

Quartered: to bring out a special figure developed by the pith or medullary rays the veneer is produced by slicing or sawing in a radial direction. The log is flitched in several different ways to permit such cutting. This type of figure is quite conspicuous in oak.

Quilted figure: see blister figure.

Radio-frequency field: see high-frequency field.

Railing: see banding.

Redryer: for veneer, in some respects similar to a hot press in that they have steam-heated plates, however, these plates only have enough pressure to hold the veneers flat. To permit the moisture to escape and prevent the veneer from checking the plates are raised and lowered alternately.

Resin: a synthetically made material of many uses; insofar as we are concerned here it is used to adhere pieces of wood and is called resin adhesive. The development in resin adhesives is comparatively recent and is broadening in the scope of its use more and more.

phenolic resin adhesives: produced from chemicals of the phenol group and formaldehyde, they harden when heated and have excellent durability. Can be had in liquid, powder and film form. Special types can be had mixed with proper accelerators, harden at moderate temperatures.

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The MARION MODEL "M" is the ONE straight line glue-joint rip saw whose design INSURES THE CARRYING OF THE STOCK PAST THE SAW BLADE IN A STRAIGHT LINE to obtain a straight joint.

● PERFORMANCE

The Marion Model "M" guarantees parallel ripping to close tolerances because of the permanency of the adjustment for straight or hollow joints.

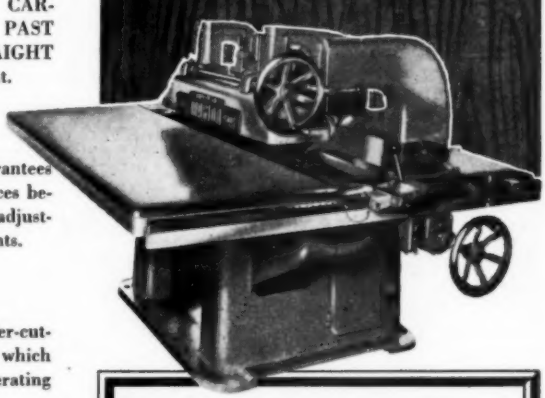
● SAFETY

The inherent safety of an under-cutting saw is augmented by devices which prevent the saw blade from operating when saw pit door is open.

● ECONOMY

Here is a rip saw built to "take it" under the most grueling operating conditions. The Marion Model "M" has power and rigidity in generous measure. The Marion Model "M" is designed for long years of trouble-free, cost-cutting service.

Send for our new Catalog showing the many Superior Details of Marion Model "M".



Marion Machine, Foundry & Supply Co.

Guarantees

the material, workmanship and design of the Marion Model "M". The efforts of our entire Sales, Engineering and Manufacturing facilities are directed toward the IDEAL —

ONLY THE BEST IS GOOD ENOUGH

COMPARE . . . YOU WILL INSIST ON A MARION!

MARION MACHINE, FOUNDRY and SUPPLY Company

DEPT. WWD MARION, INDIANA

resorcinol resin adhesives: special type of phenolics having their durability and are available in liquid form with separate catalysts, hardening at 75° F. and up. At high temperatures they cure more rapidly than standard phenolics.

urea resin adhesives: made from urea and formaldehyde in liquid or powder form, can be catalyzed for hot pressing or for cure at 70° F. and up. Similar to urea resins but for which greater durability is claimed, are the melamine resins. The melamine resins approximate the phenolics in durability.

Retainer board: see head block.

Reverse matching: see matching.

Ribbon stripe: veneer having alternate light and dark strips usually running the full length of the sheet, varying from ⅛" to 2" wide, caused by differences in light reflection from adjacent layers of wood, pronounced in quartered or nearly quartered cutting from trees with interlocked grain.

Rope figure: slightly resembles twist of a rope and is due to succession of short cross fire.

Rotary cut: When the entire log or block is mounted in a lathe and turned against a broad cutting knife that is inclined into the log at a slight angle. The veneer is cut from the circumference of the log in a continuous sheet as though it were being unrolled.

Rough patch: a rough area on the surface of veneer, usually due to twisted or oblique grain.

Rupture: tearing of the fibres across the grain.

Sampling: selecting and marking representative pieces of sliced or half-round veneer from the top, center and bottom of a flitch, used for stock-

Curved Plywood
FOR YOUR PRODUCT

Write today for information on how Larson curved plywood can become a part of your products . . . how solid woods and costly substitutes can now be replaced. The results will be lower costs . . . greater strength . . . and added sales appeal for your products. Such has been the experience of other manufacturers who took the time to write. *Do so now . . . no obligation.*

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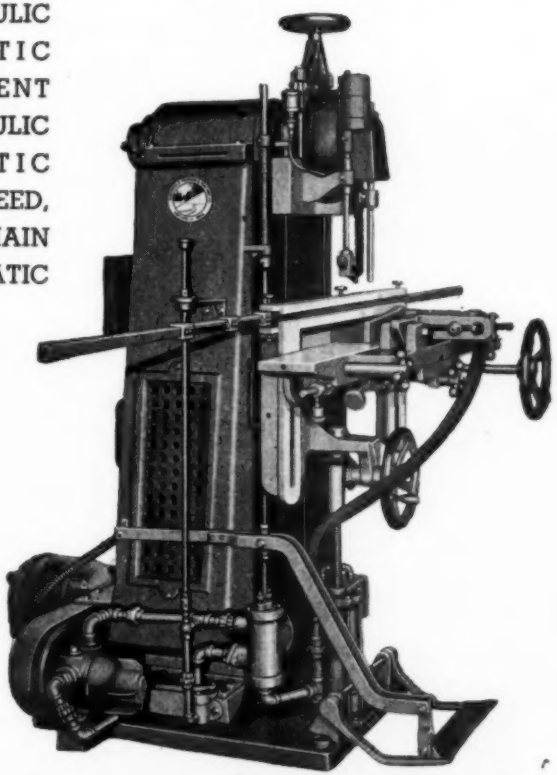
Single Chain Saw MORTISER

IS STANDARD

DIRECT MOTORED — BALL BEARING — HYDRAULIC FEED — AUTOMATIC CLAMPS INDEPENDENT MOTOR FOR HYDRAULIC PUMP — AUTOMATIC SAFETY STOP FOR FEED, ACTS IN CASE OF CHAIN BREAKAGE — AUTOMATIC OILING OF CHAIN SAW AND GUIDE BAR.



THE
NORTHFIELD
Line of
SAW TABLES

Rates Your Investigation
WRITE —

NORTHFIELD FOUNDRY & MACHINE CO.
NORTHFIELD, MINNESOTA

room records or hinged with cloth tape for sales display.

Sapwood: from the outer layers of the log after the bark has been removed, lighter in color and more susceptible to decay than heart-wood, also referred to as sap.

Sap stain: discoloration resulting from growth of certain minute fungi growth principally confined to the sapwood.

Sawn: veneers made on segment saws, such as quarter sawn oak. Although more costly because of saw kerf waste, it is often preferred because it is said to make more solid veneer.

Scarf: see joint, scarf.

Secondary gluing: in the assembly of wood products, such as aircraft, it is the gluing together of wood and plywood, whereas gluing veneers into plywood is primary gluing.

Setting: generally considered as the hardening of a cold-pressed adhesive by either gelation, evaporation of the solvent, by chemical polymerization or a combination of same with or without heat. In resin adhesives referred to as bond.

Shake: partial or complete separations of annual growth rings.

Sheathing: plywood used in building trades for undercovering of floors, roofs and walls.

Sheet: a single ply or layer of veneer.

Shim: long narrow patch, glued into the panel or lumber core.

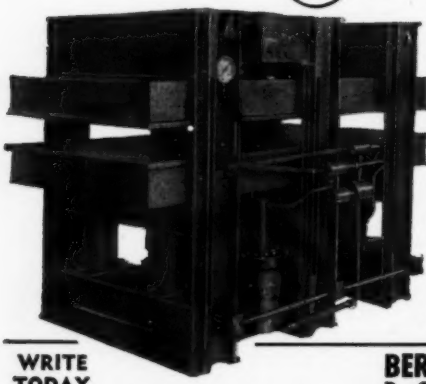
Silicate of soda: see glue.

Single spread: see spread.

Sizing: preparing surface for regular adhesive spreading by applying dilute of adhesive to same, by so doing the absorption of regular adhesive is greatly reduced as the dilute penetrates more than the regular mixtures. Sizing is not cured before regular adhesive is spread. Preferred method when joining wood of different densities.

IT'S TIME TO CUT GLUING AND PLYWOOD COSTS!

With a VB HOT PRESS



THE WALL STREET JOU

What's Ne

Plywood Boom

Mills Are Deluged With Orders; Some Prices Up 35% From 1949 Low

Big Demand From Builders, Furniture and Trailer Firms and Householders

Gray Market Is Reviving

By RICHARD H. STRING
Staff Correspondent of THE WALL STREET JOURNAL
PORTLAND, Ore.—"Sold out!"
That sign hangs on the doors

Fully Hydraulic and Automatic in operation the "VB" Press saves on materials, floor space, labor and gluing time. It is constructed of an all-welded iron frame and comes completely equipped with motor, pumps and controls. The "VB" Press is producing quality plywood at lower costs for plants throughout the country. Available in sizes from 36x52" to 50x100" or to your specifications.

WRITE TODAY—Get full information and prices, also reprint of the story of the "Plywood Boom".

WRITE TODAY

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P. O. Box 1423, Lockport Rd., Joliet, Ill.

Skin: a thin molded piece of plywood or thin hardwood covering placed over the mold to give greater durability.

Sliced: a method of cutting veneer by which logs or sawn flitches are held securely in a slicing machine and moved at an angle against a strong knife which shears off the veneer in sheets.

Slide or slip matching: see matching.

Softwoods: lumber or veneer of trees belonging to the coniferous or needle-leafed trees. Hardwoods are from the broad-leafed trees.

Solid-piled: fresh from clamps or hot press plywood is piled on a flat base, solid, without stickers and weighted down to become normal as to heat and moisture content, also referred to as bulk or dead piled.

Solids concentration: or solids content, as applied to liquid adhesive mixtures refers to the percentage of solids present on a scale of 100 for the entire mixture based on weight.

Solvent: the liquid in which glue or adhesive is dispersed.

Sound knot: tight knot free from decay and cracks, firmly joined to the surrounding wood, also called live knot.

Soybean meal: see glue.

Specific pressure: see pressure.

Split: separation of the fibres, running parallel with the grain of the veneer.

Spray gun: blows the liquid adhesive on the wood, especially good for covering remote spots or irregular surfaces. A glue gun is used to spread a bead of glue on structural parts.

Spread: the adhesive in pounds of liquid mixture applied per thousand square feet of single adhesive line, 70 to 90 pounds in conventional glues, 25 to 35 pounds in resin adhesives. Single spread means that only one of the two adjacent surfaces is spread with adhesive, double spread means

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ROCHESTER, N. Y. 532 So. Clinton St. (7) BAker 6750

both matching surfaces are spread with adhesive.

Spreadable life: working life of an adhesive mixture.

Spreader: the device used for distributing adhesives on veneer or lumber.

Springwood: that part of the annual growth ring that is formed in the early seasons growth, less dense and weaker than summerwood.

Stack, hot: hot plywood, stacked or piled immediately after removal from the hot press, hardening or cure of adhesive is completed by the residual heat stored in the plywood during the hot press operation.

Stage: one stage cycle where the cure of an adhesive is completed in the hot press before the release of the pressure, or **two stage cycle** where partial cure is completed in hot press and the cure is completed subsequently in the hot stack outside the press.

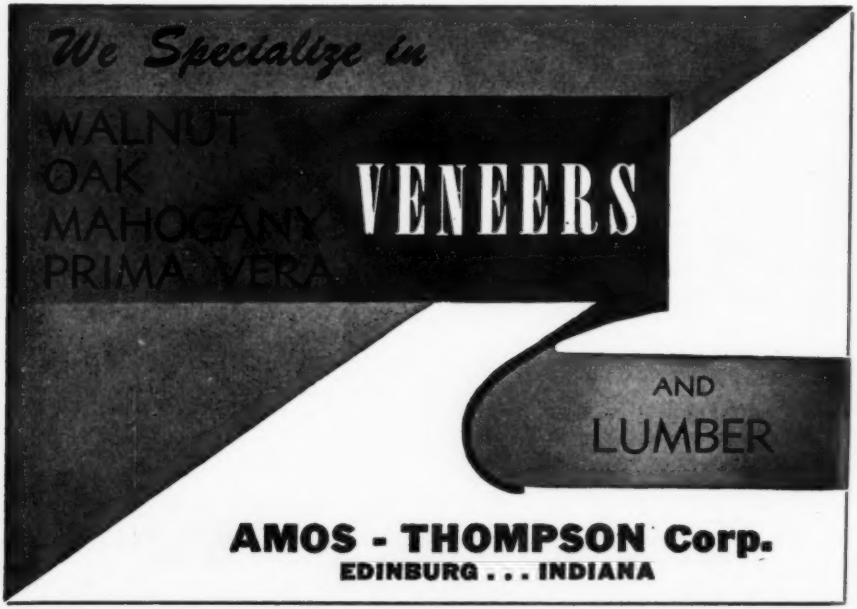
Stain: any discoloration of the wood substance. May be caused by fungi, by chemical reaction of iron in the cutting knife with the tannic acid in the wood or by the chemical action of the adhesive.

Starved joint: see joint, starved.

Station: the reference point or line on the mold, in flexible-bag work, the dimensions and shape of which correspond accurately with the blueprint, intermediate points or lines are made to follow the general contour lines between two stations.

Stay log: on a veneer lathe the attachment on which flitches are mounted for cutting half-round veneer.

Stickers: pieces of wood, uniform in size generally ¾ inch square that are laid between sheets of freshly made plywood to allow either for cooling or drying of the plywood surfaces. Uniform in size, laid across the plywood in a vertical line in the direction in



which it is most likely to warp.

Stratification: non-uniform heat conditions in an autoclave because of failure to bleed the tank and due to incorrect introduction of the steam or air, or both.

Streaks, mineral: natural discoloration of wood substance.

Strike-through: indicates that adhesive has penetrated the face of the veneer during the cure, is unsightly, interferes with finishing and makes subsequent assembly gluing difficult, also called bleeding.

Strip-heater: flexible tape containing heating units of electrical-resistance type.

Stump: part of tree left in ground after the trunk is cut.

Stump veneer: cut from the roots of a tree such as walnut. This veneer has a rich, curly figure because of the intertwining of the root fibres.

Summerwood: portion of annual growth ring formed during latter part of yearly growth period, as a rule denser and stronger than springwood.

Sunken joint: see joint, sunken.

Superpressed plywood: high-density plywood.

Swatch: single sheet of veneer usually 3 feet long and full width of flitch taken near the center to show color, texture and other characteristics of the flitch and used as a sample.

Swirls: irregular grain formation usually surrounding crotches or knots.

Synthetic resin: see resin.

Tape: gummed cloth or paper strip used to hold veneer edges together at the joint preparatory to gluing.

Tapeless splicer: a machine for gluing sheets of veneer together, edge to edge, without using gummed tape.

Tego: a trade name for one of the first well-known phenol-formaldehyde resin films.

Templating: veneers cut to predetermined shape and size for bag

THE PERFECT WALL and CEILING PANEL

ART-PLY

THE INLAID PLYWOOD

with invisible sealed joints

For new or remodeled interiors ART-PLY is ideal for wall and ceiling paneling. Simple and economical to install. Available in standard dimension panels in four patterns: Standard or Random Plank and Square or Rectangular Tile. In stock for immediate shipment.

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LONGER POT LIFE
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WATERPROOF GLUE
... ready to go to work when the whistle blows! No heating. No waiting. It's ready for work when you pour.
"Certus" sets almost instantly when pressure is applied. Its high bonding strength and colorless glue line all but make it part of the wood.
When quick setting, non-staining and high bond strength are factors, "Certus" low initial cost is equalled by its quick, easy handling for high production output.
"Certus" needs no catalyst. Its tough binding strength adds to product quality . . . costs no more. Send for a test sample.
"Certus" is another outstanding MONITE industrial adhesive for industry. Behind it stands 35 years research and development.
MONITE WATERPROOF GLUE COMPANY
1628 NORTH 2ND, MINNEAPOLIS 11, MINNESOTA

molding operations requiring the laying-up of compound curves.

Testing: determining strength and durability of adhesives, veneer and plywood.

Thermoplastic: a material that softens when heated like thermoplastic resin. Used as an adhesive this resin usually requires hot pressing and the pressure cannot be released until the temperature has been reduced to a point where the resin hardens.

Thermosetting: a resin, adhesive or otherwise, which hardens when heated, but will not soften when reheated; no cooling is required before the release of pressure when plywood is made.

Thick section: plywood or laminated structure over one inch thick. If the radius of curvature is not relatively large such a structure is difficult to glue well in flexible-bag molding.

T ght side: the side of a sheet of veneer opposite to that which the veneer knife first enters. This opposite face is slightly in compression but free from any ruptures.

Turnbuckle rods: see clamp irons.

Twist: spiral distortion.

Two ply: veneer face construction in which a fragile veneer is backed up or reinforced by 1/40 to 1/60 inch cross laid backing veneer, usually bonded with a resin film. Stump or burl usually backed by birch or maple to prevent damage.

Urea resin: see resin.

Vat: see cooking vat.

Vegetable glue: see glue.

Veneer: a thin sheet or layer of wood of uniform thickness, from 1/100 to ¼ inch thick, occasionally slightly thicker.

Vent: pipe from flexible bag, through walls of an autoclave, to the outside atmosphere.

Vertical grain: same as quartered grain.

Vulcanizer: autoclave or cooker.

Wall Board: plywood for building trades to cover interior walls.

Wane: on a sheet of veneer, a tapering edge caused by round shape of log, or improperly trimmed log from which it was cut, also called wany.

Warp: distortion due to stresses causing departure from a plane or true form.

Working life: in resin adhesives the time during which a mixture of resin adhesive remains suitable for spreading before it hardens in the receptacle, or it commences to gel.

Wrapper: in flexible-bag molding, wrapping is the process of placing veneers on or in a mold; the workman who can do this assembling or laying up on or in the matrix or mold is a wrapper.

Wrinkle: in plywood the unglued area caused by failure of veneers to slip into place. Unlike a blister the surplus veneer cannot be pushed into its proper position.

The End

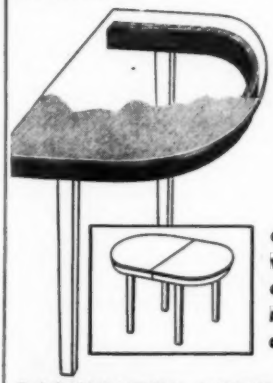
FIVE PLYWOOD COMPANIES WIN AWARDS

From the almost 5,000 corporation annual reports for 1949 submitted in the Tenth Annual Survey, conducted by Weston Smith of "Financial World," 5 plywood companies have qualified for highest merit award citations: Cascades Plywood, Harbor Plywood Corp., Mengel Company, U. S. Plywood Corp., Wheeler Osgood.

The stockholder reports of these companies have thus become candidates for the final judging, and one will be selected for a "Best of Industry" award and presented with a bronze "Oscar of Industry" at the "Financial World" Annual Report Awards Banquet on Monday, October 30, 1950, in the Grand Ballroom of the Hotel Statler in New York.

molded plywood

Table aprons and chair rims — faced in all popular woods. Stock molds for standard sizes on hand. Now supplying largest manufacturers.



also faced with decorative metals or plastics

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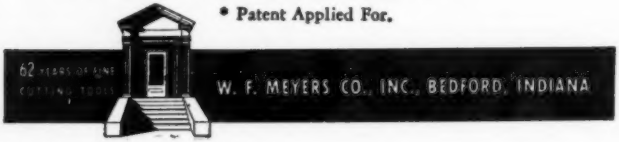
CARBIDE TIPPED MEYCO SAWS

You will be interested in this radically new development IF your carbide tipped saws sound like a police siren; IF they develop a "snaky" cut after short usage; IF they dull fast because carbide tips become chipped.

MEYCO VIBRA-FREE* saws embody a new principle in saw design, a new control over vibration by the use of sound absorbing dampers, which eliminate excessive vibration, excessive noise . . . produce smoother cuts, longer blade life, longer life for carbide tips. You get MORE cuts between sharpenings and operators LIKE to use Vibra-Free* blades. Investigate this revolutionary development TODAY. Write for full information and price list:

* Patent Applied For.



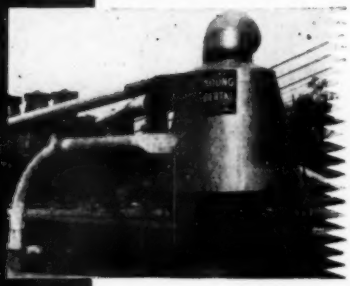
SALES AHEAD IN HOME FURNISHINGS

Sales of home furnishings in 1950 will exceed the record year of 1948, in the opinion of Gen. Lawrence H. Whiting, president of the American Furnitue Mart. Retail sales in July ran more than 30% ahead of the same month in 1949, he said. Wholesalers' sales were 63.6% higher and manufacturers shipped nearly 50% more furniture. While business on television and freezers was higher in metropolitan areas, and factories have been deluged with orders, the rural areas have been less affected by "scare buying," and this is dying down in the cities, he said.

Executives of the American Furniture Mart have visited every principal furniture section in the nation in the past 6 weeks, and a Mart vice president is now surveying the situation in Europe.

Following the summer market in June, many manufacturers withdrew

YOUR PARTNER in increasing your profits



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Yes, an adequate dust control system in your plant is the same as another partner working for the good of your business. It improves the efficiency of your machinery and raises employee productivity.

Young and Bertke engineers design and install dust collecting systems that are the last word in efficiency and renovate obsolete or inadequate existing systems so that they do an efficient job for you.

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The YOUNG & BERTKE Co

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their lines for the time being, pending a check-up of the business on hand. Most of these have now come back in the market, with slight increases on items which employ metal.

The Korean situation is not entirely responsible for the boom in home goods, Gen. Whiting pointed out. The month of July 1949 was the low-point in the 1949 recession: business picked up sharply during the fall months of that year. Manufacturers' shipments ran 4% ahead in January 1950; 9% ahead in February; 15% in March, 26% in April and 29% in both May and June. Gains for this year to date will run about 22-27% ahead in furniture and far more than that in television.

M.F.M.A. MOVES TO CHICAGO

The Maple Flooring Manufacturers Association is moving headquarters and offices from Oshkosh, Wis., to Chicago. As of October 1, the association's address will be Pure Oil Building, 35 E. Wacker Dr., Chicago.

THE ELECTRIC

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PORTABLE HAND-SAW

Designed, Manufactured and Patented by Scintilla, Ltd., Switzerland, since 1944.

Saw Where You Wish

Powerful new portable saw will start in middle and cut curves anywhere on the job.
Few tools can approach the versatility of the Electric LESTO Saw. Its finely ground, projecting blades saw at 2400 strokes per minute, with uniform power throughout each stroke—sawed edges are left virtually smooth. Gears and bearings are contained in a separate unit sealed against sawdust and dirt. Cutting lines are kept sawdust free by built-in blower fan.

Cuts Metal Too

Special blade can be used to cut any kind of metal.
SEVERAL THOUSAND ALREADY IN USE IN THE UNITED STATES.

Sold and Serviced throughout the World.

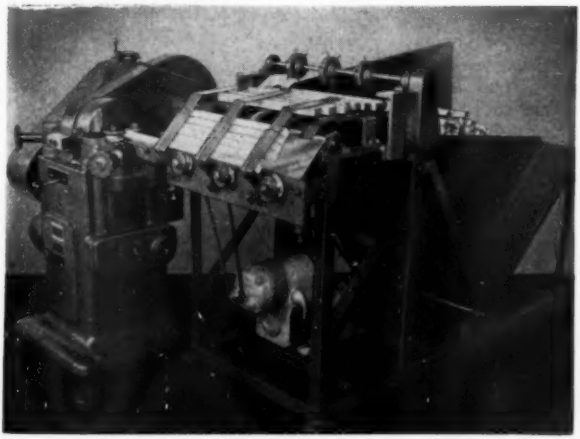
For further information regarding descriptive literature and names of distributors serving your area, contact:

Write directly to: **VICTOR KRIEG** — Sales Manager — **15 Moore Street, New York, New York**

SCINTILLA S. A. — **Soleure Switzerland**

Equipment and Supplies for the WOOD WORKING INDUSTRY

DOWEL AND ROD PRODUCTION



Faster production of handles and rounds for other purposes is claimed for the new Hawker automatic hopper feed machine designed for use with the new 1950 Hawker rod and dowel machine. The new machine consists of a hopper bin of adjustable length into which dowel squares are loaded. The machine picks squares from the hopper by means of chain belts and delivers them into a feed magazine at the front of the machine. V-shaped feed rollers then deliver the squares to the infeed rollers of the rod and dowel machine, continuously, end-to-end. The automatic hopper feed is independently powered by a variable speed motor permitting accurate setting of speed of feed to prevent jamming or overloading.

Productive capacity of the rod and dowel machine is said to be up to 200 lineal feet per minute.

Detailed information and literature from the Hawker Manufacturing Co., 1425 Keowee St., Dayton 4, Ohio.

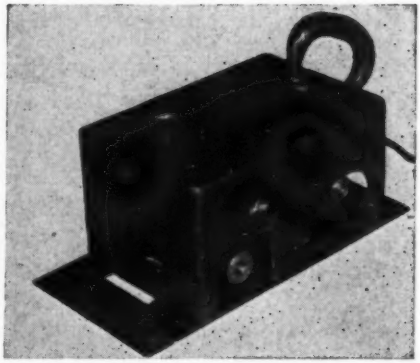
GRAPHITE COATED CANVAS FOR SANDING OPERATIONS

This graphite coated canvas is said to be used by more than 600 furniture manufacturers, cabinet makers and other woodworkers. The material is made of canvas duck and has a heavy graphite coating which acts as a lubribricant and helps reduce the friction against the back of the sanding belt, speeding up sanding operations. Used on endless belt and edge sanders, it is also possible to use it on handblocks. Special widths are available in addition to the regular 36½" width and the 6" width regularly supplied. Sample furnished upon request.

Process Engineering Corp., 1749 W. Fulton St., Chicago 12, Ill.

PLANER AND JOINTER

This 2½" Barton combination electric shaver can be used to plane surfaces up to 2½" wide. When inverted it can be used as a jointer by passing the wood



over the top of the cutter head. It is constructed of steel plate and has 3 knives in the head rotating 3450 r.p.m. to assure a smooth cut.

Other specifications include ¼ h.p. b.b. motor, 115v. with belt drive. 8" x 10" x 18" overall, 37 lb.

Additional information from Cosa Corp., 405 Lexington Ave., New York, New York.

WALLACE NO. 10—8" JOINTER.

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master-workman

FOR FASTER, BETTER JOINTING!

Edging — bevelling — surfacing — taper cuts — rabbetting — tenoning

Most versatile Jointer made. Has 8" four-knived cutterhead, with knives set askew for shearing cut! One or two h.p. motors, direct connected, with speed choice of 3600 or 5200 r.p.m. Available in lengths of 40" or 6' 4" overall. For speed, smoothness of cut, accuracy and over-all economy, this Jointer can't be beat.

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SLIDES AND FOLDING LEAF EQUIPMENT

Wabash Slides on extension tables eliminate "drooping" when extended.

There is a type of hardware in the Wabash line for every requirement. Ask about it.

FOR NEW TABLES

NOW IS THE TIME to improve extension table design. When operation is smooth and easy, tables have the added appeal and convenience today's buyers demand. Wabash Slides and Folding Leaf Equipment may be engineered to your table for smooth action and smoother production. Have your extensions and hardware "styled by Wabash experts" at no extra cost. We can help make your tables more salable.

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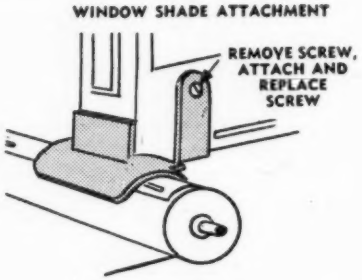
R. WALTER & COMPANY, INC. WABASH, INDIANA

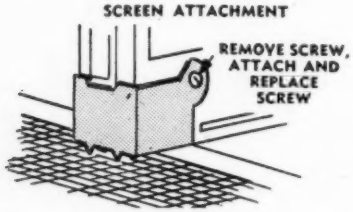
Walter of Wabash

STAPLING MACHINES

The Arrow Fastener Company, Inc. manufacturers of stapling machines announce two important innovations that should prove of great help in tacking duties.



A window shade attachment to the T-32 gun tacker which is attached by simple operation — simply removing screw, fitting shade attachment and replacing screw, as illustrated. This attachment assures positive deepest penetration of staple into window shade pole and results in faster operation.



A screen attachment, whose attaching operation is the same as the window shade attachment, is constructed with two prongs which clamp into the webbing of the screen rendering it taut and eliminating any slack when tacking.

For additional information write to Dept. WD of the above Company, 30-38 Maujer St., Brooklyn 6, N. Y.

SCREW DRIVER HAS BUILT-IN FLASHLIGHT

A screw driver that lights up the head of a screw obscured by shadows or completely blanked out by darkness, is announced by Vaco Products Co. It has a handle containing a flashlight bulb, battery, and directional lucite lens, thus enabling the user to throw a circle of bright light onto the work where needed and as long as desired. The flashlight operates by turning a knurled knob in the handle dome: It will remain illuminated until switched off. This knob does not interfere with manipulating the screw driver.

The standard blade is of forged chrome durable Vanadium. A long-life bulb and regular pen light dry battery, are easily replacable.

Vaco Amberyl Flashlight Screw Drivers come in three convenient sizes. Model No. FL-24 has an overall length of 7⅝", with a handle 1" x 3⅝" and a blade ⅛" x 4". The No. FL-34 Model is 8⅝" in length, with a handle 1" x 3⅝", and a blade 3/16" x 5", for slotted screws, and No. PFL-1 with a 3/16" x 5" No. 1 Phillips bit for cross slot screws.

Vaco Products Co., 317 E. Ontario St., Chicago 11, Illinois

Lots of people know a good thing the minute the other fellow sees it.—**O'Sullivan Kidder**

MIDGET MOISTURE METER

Designed for utmost convenience, this new Tag midget moisture meter indicates per cent moisture direct, at the touch of a button.

To check wood, the user inserts the needle electrodes in the sample, presses a button, and reads moisture content direct from the large, open scale, calibrated from 7% to 30% moisture.

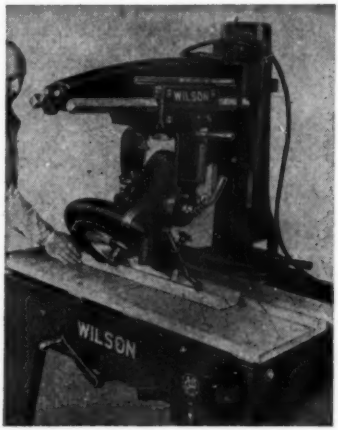
The new Tag model 8009 is light, compact and self-contained, requiring no charts or conversion tables. It measures 4½"x4½"x3⅛", weighs less than 4 pounds, and uses two common type batteries. Slung from the shoulder, it is easy to handle.

Tagliabue Div., Weston Electrical Instrument Corp., 614 Frelinghuysen Ave., Newark 5, N. J.

COMPRESSED DOWEL PINS

Founded by woodworking interests in Gardner, Mass., to improve the common turned dowel pin, the Gardner Dowel Company has pioneered and is producing ExpanDowel, the compressed dowel pin. Comparatively new to many wood fabricators, this pin has helped improve the quality and stamina of wood products where ExpanDowels have been used.

An uncompressed dowel pin may shrink with age, especially in the dry heated air of winter. Through shrinkage, wood-to-wood contact is partially lost. Subjected to shock or strain, creaks, wobbles and even complete



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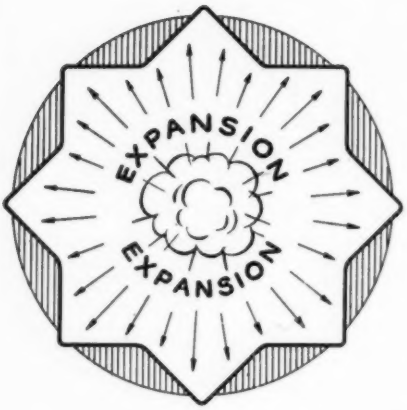
Est. 1922



separation at the joint may develop. The compressed wood fibres of the ExpanDowel are released by moisture in the glue so that the dowel expands to the sides of the hole to form a tight, wood-to-wood, pressure-glued joint. The manufacturer claims that the size of the hole restricts the expansion of the pin, but that there is always a tendency to expand still further.

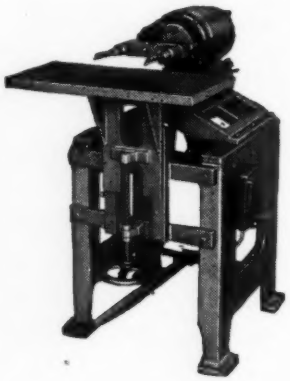
Illustration shows a cross-section of the pin. Literature and additional information is available from the Gardner Dowel Co., 379 Pine St., Gardner, Mass., Dept. OK.

DUMORE AUTOMATIC DRILL HEAD

This new automatic drill head can be applied anywhere for drilling diameters from .0135" to .1800" in ferrous or non-ferrous metals, plastic, wood, etc.

The Dumore Company has combined one of their motors having a double-end armature shaft with a No. 0 Precision Jacobs chuck on one end and a rotary vane compressor on the other end—the entire assembly operating as a unit. Motor supplies the power for drilling, while self-contained air compressor advances drill at pre-determined speed and pressure.

The speed of the Universal motor is controlled by the load of the rotary



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INDIANA TYPE 15H
TWO SPINDLE BORER
Foot or power feed

Also 15M:2 air-operated
Boring capacity: 1" to 25".

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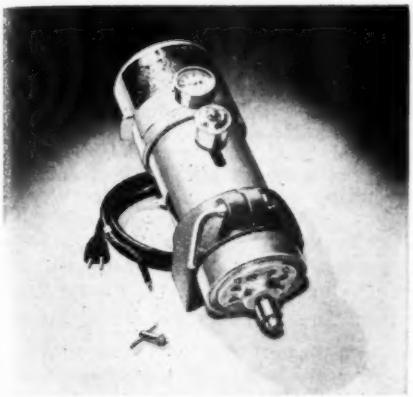

vane compressor which acts as a speed governor. Thus, the Dumore drill head operates at usable work speeds varying from 2500 to 7500 RPM, depending on the pressure exerted on the drill by adjusting the air pressure and feed regulator. Pressure and feed vary according to drill size. Control of speed and feed permits working closer to the maximum strength of the twist drill, resulting in increased hole production and less drill breakage. Setting the externally positioned air intake valve controls the rate of drill advancement to the work. Depth of stroke ranges from 1/32" to 1⅛"—is selected by adjustable stop nuts in head—can be controlled to within .004".

The Dumore Co., Racine, Wis.

ONSRUD-QUIRK PRODUCTION SANDING MACHINE

The Onsrud-Quirk S-3 sanding machine now being announced to the woodworking field is adaptable to the high speed sanding of many different types of work such as wood heels and similar small parts. The machine is designed particularly for parts with varying contours, such as wood heels; every type of feed required to bring all surfaces of the part in contact with the sanding belt can be provided in the setup—up and down or in and out motion, angulation and rotation.

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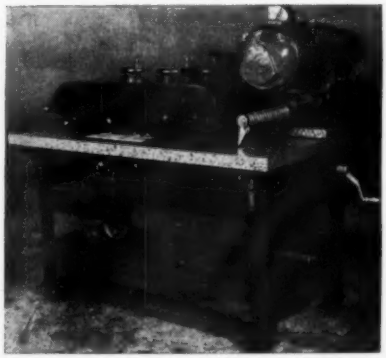
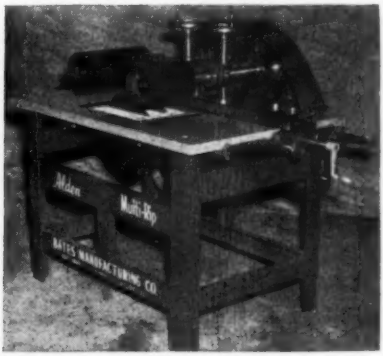


12" STANDARD



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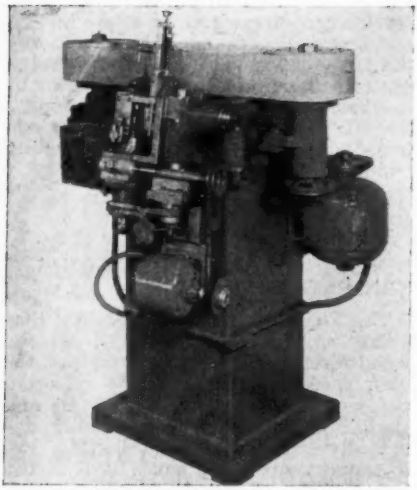

Versatility of the machine is demonstrated in its application to wood heel sanding for women's shoes. Such wood heels vary immensely in types of contour and range of size. The multiplicity of styles is almost infinite. The S-3 is designed to meet any requirement that might exist in production, providing tremendous flexibility, fast setup, and high speed production. Average speed of the S-3, depending upon the type of part, is 45 parts per minute. The finish after sanding is very smooth, requiring no final buffing or rubbing after lacquer is applied.

The Quirk Machinery Company of St. Louis is responsible for the design of this machine and also handles distribution. Machines are built by the Onsrud Machine Works, Inc. Machines may be leased. For complete information write the Onsrud Machine Works, Inc., 3947 Palmer Street, Chicago 47, Illinois, or the Quirk Machinery Company, 2010 S. Seventh Street, St. Louis, Missouri.

TOOLKRAFT BAND SAW

The Toolkraft Corp. announces a new 9½" cast iron Darra-James band saw with accurately machined rubber-

Here's Cutter Accuracy!

Plus Faster Cuts, Longer Life and Safer Operation for

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Behind every Porter Cutter is over 60 years of active experience in the woodworking field . . . your guarantee for the finest in cutter performance.

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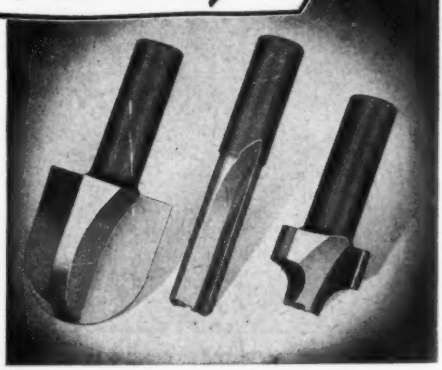
Ask for your free copy of the New Porter Cutter Catalog No. 50. It's complete with illustrations, specifications and prices! Send for your copy now.



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Friction between collar and pattern entirely eliminated — no more burning.

Outer rim is independent of the slotted collar and revolves with the feed of the work.

Collars can also be supplied without grooves for use with solid steel cutters.

Give diameter of collar and size of hole.

GUSTAFSON & SCOTT MFG. CO.
1637 Lowell Avenue Chicago 39, Illinois

crowned wheels. One piece guard completely encloses upper and lower wheels to insure safety of operator.

The saw cuts to the center of an 18" circle, and up to 4¼" depth of cut. Other features include upper and lower adjustable brass blade guides with blade backing wheel. The raising and lowering mechanism of the upper pivots from the back end of the arm to simplify blade tension adjustment. The rigid reinforced one piece cast iron frame gives unusual stability and assures perfect alignment, we are told. Ground cast iron table tilts to 45°.

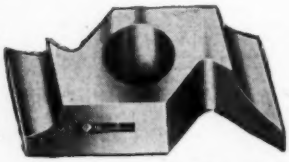
Toolkraft Corp., Springfield, Mass.

YANKEE PUSH DRILL

Modern in design, this new "Yankee" drill is a rugged dependable tool for drilling small holes in wood or plastics. It has the improved "Yankee" chuck that makes it easy to insert drill points, and hold them positively so they cannot pull out while in use. The handle, made of tough black plastic and polished aluminum, contains eight drill points, individually stored—in full view for easy selection. Sizes range from 1/16 to 11/64 of an inch.

North Bros. Mfg. Co., Philadelphia, Pa.

Marathon



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Marathon High Speed Steel Knives are made in any length, width, or thickness. They have the proper degree of hardness to insure a sharp clean cutting edge that will not chip or turn over.

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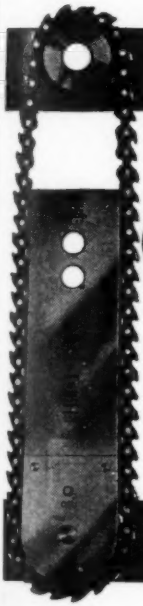

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Get better clamping with Hargrave Wood Working Clamps . . . right for every joining job. Designed specifically for the wood worker, these quality clamps are easy-handling, quickly adjusted, with strong bodies and jaws, and practically indestructible threads. *Individually Tested.* Openings from ¾" to 12 ft., from ½" to 16" deep.

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(3 sizes)

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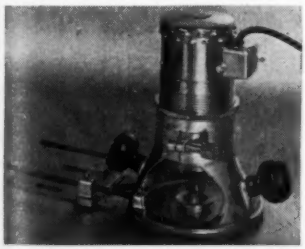

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1¼ HP Portable Router, Immediate delivery

$124.50 F.O.B. Chicago Universal 110 volt AC-DC. 1¼ HP. Speed 18000 RPM Motor. Switch conveniently located. Air cooled—New Departure sealed ball bearings.

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One ¾" Template guide furnished, various lengths and diameters can be made on request.

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Smooth finish on work and easy cutting are advantages that are yours with the Onsrud W-200 Electric Detail Shaper. The W-200, with high spindle speeds, permits use of small diameter cutters for high speed work and low cutter cost. Get all the facts on the Onsrud W-200 . . . includes every worthwhile feature conceived in a modern shaping machine. Write for Bulletin W-200.

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USES FOR HARDBOARD

Various types of hardboard are being manufactured in an attempt to hold down rising prices. These hardboards have many applications and in some instances have received treatment to make them weather-resistant. The uses suggested here are particularly for those hardboards which have received treatment. If interested in further information, write to us for names of manufacturers in your area.

Here are some of the uses suggested for hardboard, treated for hard usage and weather-resistant: signs and displays, walls for showers, under eave construction, trailer truck or wagon bodies, dog houses, toys, blackboards, board games, ping pong tables, sheeting, wet wall construction, milk houses, barns—utilization within barn for bins, etc.

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Style 5: For interior woodworking, body building, furniture, sash and door manufacture. Rapid action tail piece. Quickly adjusted. 32 Clamp Styles Available. Write for free Catalog Today.

Used for gluing where triple clamping is required on irregular shapes.

The HARTFORD CLAMP COMPANY EAST HARTFORD, CONN. Est. 1915

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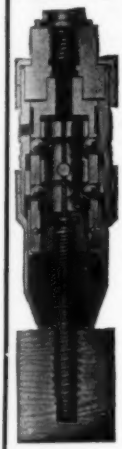

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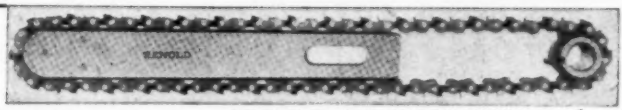

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Fits any chain mortising machine. Renold mortise gear is made by specialists in the manufacture of transmission chains. It embodies the best design, finest skill in workmanship and these factors, combined with the specially selected steels employed, insure users of Renold gear the maximum result. Write for prices, advising kind of machine you have and size of mortise you wish to cut.

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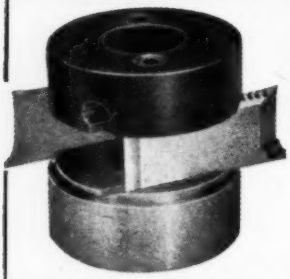
Knourek Patent Ball Bearing Shaper Collars for use with plain beveled edge shaper steel or Lock Edge Shaper Steel. Ask for circular covering Knourek Ball Bearing Shaper Collars and Schmidt Lock Edge Collars. This combination prevents accidents on shaper and knives cannot become loose and fly out of collars.



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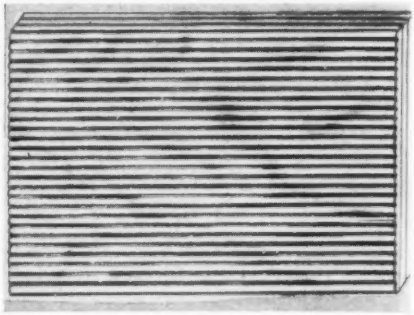
This material is a parallel-line embossed plywood. The lines are evenly spaced, making a varying design as the ridges and grooves catch light and shadow. Ridge tops are smooth, flat and rounded off to resist splintering and denting and for easy cleaning. The three-dimensional design is heat-embossed, leaving the natural pattern of the wood grain visible.



Best possibilities for this wood, presented by the Zero Plywood Company, is for wall paneling, ceilings, doors, cabinets, furniture and displays. With the parallel-line pattern, rooms may be made to appear larger or smaller; walls higher or lower, depending on direction of pattern.

Combwood is available in ¼", 3-ply, solid core and back, 4'x7' and 4'x8', interior and exterior.

Write for details, Aetna Plywood & Veneer Co., 1737 N. Elston Ave., Chicago 22, Ill., midwestern distributor.

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The Oliver No. 202-V2 electric moulder handles material up to 4" wide and 2" thick. Feed chain is above and below stock with variable feed 20-80 f.p.m. Cutter heads are of self-centering type with 1¼" bore, either square or round heads can be used with a maximum cutter diameter of 6". Each head unit is driven by V-belts at 7,200 r.p.m., or if ordered 5,400 or 3,600 r.p.m. Each side head has a 3 h.p. motor and top and bottom heads have 5 h.p. motors.

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THE MILLIKEN NAILING MACHINE

1. Replaces hand work in assembly
2. Needs no skilled operators
3. Increases production—lowers unit costs
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DRIVES NAILS, PINS OR DRIVE SCREWS

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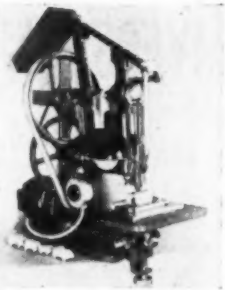

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TO FIT YOUR BORINGS

Screw Hole Plugs and Buttons

Drawer Stops,

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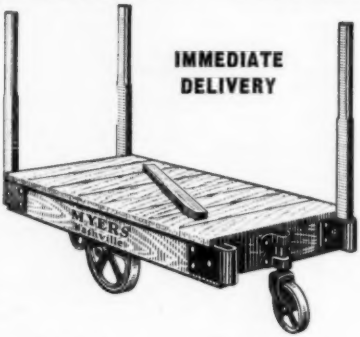
MYERS "TOUGH BUILT" TRUCKS



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Platform Sizes: 21 x 42" to 36 x 72"

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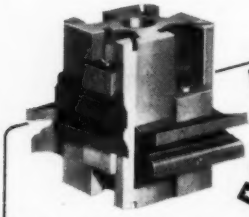

THE SHIMER
COMBINATION HEAD

a master tool for master craftsmen—for a wide range of woodworking jobs!

. . . cuts costly set-up time, boosts production! Available with milled-to-pattern bits that hold their pattern permanently for door and sash (either standard or special), as well as for matching, shiplap and mouldings of most any shape!

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SHIMER

SAMUEL J. SHIMER & SONS, Inc
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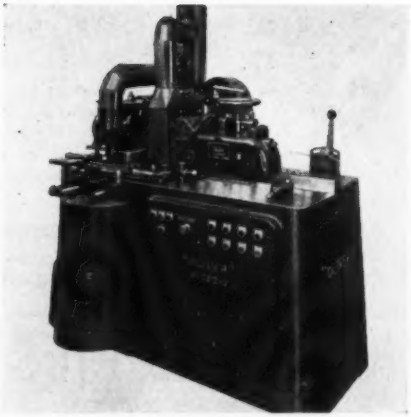


Motors are enclosed and fan cooled.

Other specifications include: feed motor 1½ h.p., 1,800 r.p.m.; magnetic control and pushbuttons in special control panel; manual brake for each head. Over-all 44"x76", height 54".

Oliver Machinery Co., Grand Rapids, Mich.

TESTING EQUIPMENT

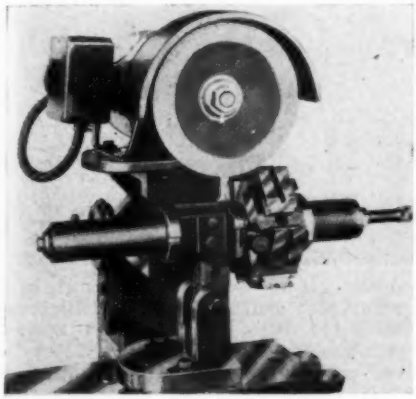
Ten national wood product manufacturing companies have built or are planning to build the mobile glue testing machine designed by the research laboratory of the Timber Engineering Company of Washington, D. C., an affiliate of the National Lumber Manufacturers Association.

This simplified equipment which can be built for less than $200 has been adapted in principle from a heavy machine in the laboratory of the Timber Engineering Company valued at $27,000. Purpose of the machine is to test the strength of glued products coming off the production line. It permits an efficient means of instituting quality control measures at the factory. Blueprints and instructions are provided only to students attending glue courses.

Enrollment blanks and full information concerning the course may be obtained by addressing C. A. Rishell, Director of Research, Timber Engineering Co., 1319 18th St., N. W., Washington, D. C.

NEW GAUGE FOR SIDE HEAD GRINDERS

A new side head gauge, G-11, is now furnished as standard equipment on all models of Dependable Machine Company side head grinders and is available for other make machines where it can be adapted. According to the manufacturer, the G-11 is easy to operate and



very accurate. Heads can be set accurately in just a few minutes, it is claimed, and the gauge will reduce "down-time" on costly production machines that are stopped for head grinding.

The gauge is adapted to grinding heads with various numbers of knives: 6, 8, 10, etc. Literature and prices from Dependable Machine Co., Greensboro, N. C. Request Bulletin C-1.

COMET CUB

The "Comet Cub," described by the manufacturer as a versatile tool for cabinet and furniture manufacture, is announced by the Consolidated Machinery and Supply Co.

The machine is designed to perform each shop operation—cross-cut, rip, bevel rip, miter, compound miter, tennon, bore, carve, rout, plane, shape, dado, plough, buff, sand, turn and many other woodworking jobs. The tool in-

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DETRO MFG. & SALES CO., INC., CULVER CITY, CALIF.

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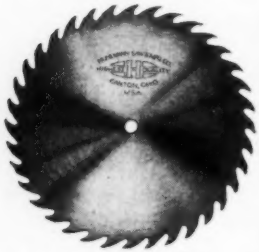

HIGHEST QUALITY SAW BLADES

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Write for detailed Catalog

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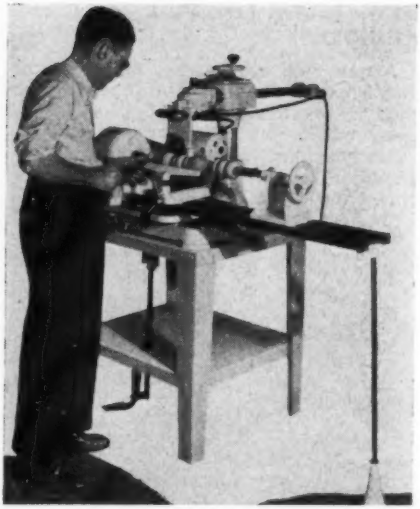

corporates an overhead retractable radial saw arm, mounted on lifetime lubricated ball bearings, that moves with the saw. Powered by a 110v, ¾ h.p. motor—one shaft that turns at 12,500 r.p.m. for smooth routing, shaping and finish cutting and a second shaft at 7,200 r.p.m. for slower speed operations.

Accessories available include: boring table, adjustable router-shaper table; lathe; shaper fences; power take-off; sanding table; mitre gauge; buffing, grinding and wire wheels; etc.

Consolidated Machinery and Supply Co., 2029 Santa Fe Ave., Los Angeles 21, Calif.

TWIN-FAST SCREWS

Twin-Fast screws for wood and plastics are presented by the Blake & Johnson Co. These screws are said to provide many new features, assuring faster, neater and tighter fastenings. Twin threads, cylindrical construction, single, centered point, relieved shank diameter are four of the improvements in design.

The screws are available in steel and brass, in all standard sizes, with round,

flat and oval heads. Special lengths and diameters are also carried in stock.

For brochure and additional information, Blake & Johnson Co., Waterville, Conn.

WET GRINDSTONES

For extra keen grinding of edge tools there has been developed a wet grindstone model, with two grindstones by a motor mounted on a bench or floor stand. Furnished with the grinder are two wheels; one a coarse sandstone wheel and the other a fine Arkansas type wheel.

A simplified friction roll drive eliminates two pulleys and two bearings. There is no countershaft belt to adjust. The 1" steel roller is mounted on a ½"

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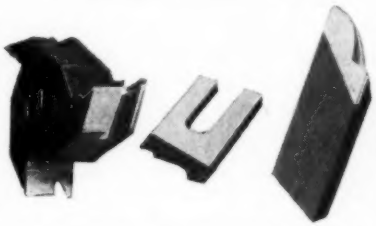

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Cap. 1500 lbs.

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Standard sizes 24" x 48"—30" x 48"—30" x 60". Special sizes and styles to order—capacities up to 7500 lbs.

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DRY TYPE

110-125, 220-240 Volts A.C. or D.C.

Heavy sheet iron body with removable porcelain enameled metal glue container. One quart to four quarts.

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DANVERS 11, MASS.

diameter shaft. The peripheral speed remains constant as the wheel wears. Reduction in diameter is automatically compensated for by step-up in wheel rim speed. The controlled water action on this grinder prevents splashing of water on the operator.

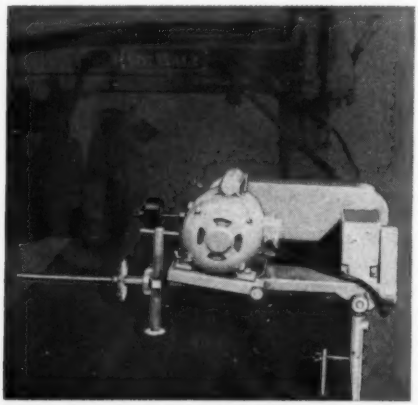
The tool rest, adjustable from 0 to 30 degrees, can be positioned in relation to the wheel wear. For further information, write to Boice-Crane Co., 931 Central Ave., Toledo 6, Ohio.

SAW ATTACHMENT

De Walt, Inc., Lancaster, Pennsylvania has introduced a new idea in a power rip feed attachment for a radial arm saw. This equipment can be attached to almost any radial arm saw and many under table saws. The power rip feed may be attached quickly and securely with two mounting brackets supplied with the unit.

The design of this unit enables the operator of the saw not only to use it for straight rip sawing but also for bevel ripping, molding, power feed shaping, ploughing, grooving and rabbeting. The mobility of this power rip feed saw unit further enables the operator to move the unit completely out of the way in a matter of seconds once power feed work has been completed.

This unit is equipped with adjustable feed rollers for feeding material into



the cutter and taking cut material away. Material is fed by these rollers and held firmly against the guide strip to assure the maximum accuracy in cutting operations.

For additional information write to Dept. WD of the above Company.

ATLAS 15" DRILL PRESS

Available in high and slow speed models, with a choice of full-tilting or production oil table, Jacobs chuck or No. 1 or No. 2 Morse taper spindle, here's an Atlas drill press that will save time and money in every drilling and tapping operation that comes within its 15" capacity.

The new Atlas models include fifteen-inch floor type, bench type, production base and two, three and four spindle drills.

Outstanding features are: a new floating drive with six-splined spindle and steel drive sleeve supported by two ball bearings, ground steel spindle supported by two widely-spaced ball bearings, ground steel quill, new head casting design for added rigidity, extra-heavy head, column and base.

For illustrated catalog write to Atlas Press Company, 1819-2019 N. Pitcher Street, Kalamazoo, Michigan.

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Jorgensen offers a complete selection: Hand Screws, Drop Forged and Malleable "C" Clamps, Steel Bar Clamps, "Pony" Clamp Fittings and miniature "C" Clamps — the very best in service giving quality.

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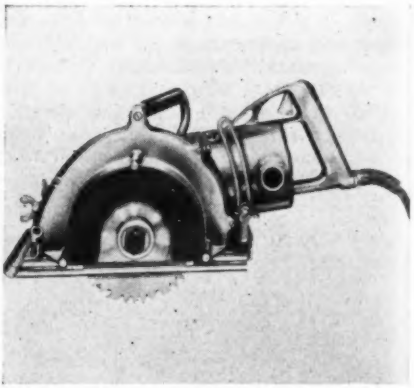
GROOVER SAW

When used with a 7" dado set, this new Skil 7" groover saw, model 117, can cut away a maximum cross-section of over 4 square inches. Dado sets are adjustable to dado and plough up to 2-1/16" wide, and built-in depth adjustment allows range of 0° to 2-1/16" depth of groove. A regular combination blade of 10" diameter also may be used with this saw for standard crosscut and rip sawing in lumber up to 3⅜" thick.



Model 117 is engineered for fabricating heavy millwork such as grooved staves for wooden storage tanks and vats. It is adaptable as well for gang-grooving of similar pieces.

Skil groover saw features a sturdy die-cast aluminum alloy housing, safety trigger switch, powerful universal motor and ball and tapered bearing construction throughout.

Skilsaw, Inc., 5033 Elston Ave., Chicago 30, Ill.

HICKORY SPRINGS EXPANDS

Jack B. Tunnell, secretary-treasurer and general manager of Hickory Springs Manufacturing Co., Inc., Hickory, N. C., has announced the completion of a large modernization and expansion program of his firm. The program allows up to 75% more production.

CARBIDE TIPPED BLADES

The Black & Decker Mfg. Co. announce the introduction of special carbide tipped blades for their line of "Quick-Saw" portable electric saws. The carbide tipped blade is recommended for wood because of special tooth design and number of teeth.

These blades come in 3 sizes: 7-inch (18-tooth), 8-inch (20-tooth) and 9-inch (22-tooth). They are designed to fit all recent Black & Decker "Quick-Saws."

Black & Decker Mfg. Co., Towson, Md.

NEW WOOD FINISHES

Breinig Brothers announce the development of a complete line of wood finishes. Modern light tones on all types of woods are made available by application of these new stains and finishing coats.

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SAVES $30 to $50 A MONTH IN LUMBER AND LABOR
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Precision Cutters

- Miters door, furniture trim; sash, screen, frames, casket work.
- Finest machining and fitting throughout.
- Gauge Stops for production runs.

Bench Model, $59.50; cuts 1¾" moulding. Foot powered model, $123.40; cuts 2¼" wide. Leaves hands free for aligning work.

Write for full Information.

Also, Lion Trimmer for finish trimming to any angle, $51.75. All prices F.O.B. Stratford.

POOTATUCK CORP. 14 Sammis Pl. Stratford, Conn.

Breinig Brothers, Inc., Dept. WD, Hoboken, N. J., for complete details.

"Why don't you marry me?" he demanded. "There isn't anyone else, is there?"

"Oh, Oscar," she sighed, "There must be."

—Veneer Newsletter

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UNIT TYPE — 300 to 3600 cfm
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Send for Cat. 605a; describe problem.

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Here's a cabinetmaker who knows every joint he cuts will be perfect. Why? A combination of two things: his skill and the smooth accuracy of his Moak Hand Planer and Jointer.

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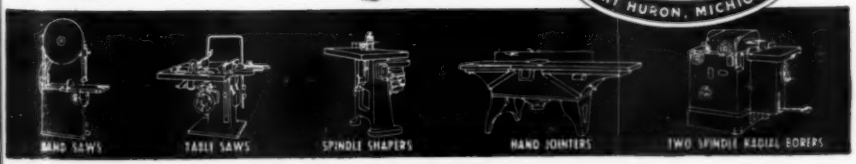

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Send us your inquiry.

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Dowel Machine, No. 2 Hawker, motor driven.
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Moulder, Hermance 10", belt driven, with slip-on heads, 20 HP GE motor

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Planer, Whitney 30" double, with new ball bearing in top and bottom heads, sectional double infeed rolls, flexible chip breakers, motor driven, Vee belt drive
Planer, American No. 444, 30", motor driven, ball bearing, round head, sectional feed and chip breaker, grinding attachment
Planers, Belsaw 12", ball bearing
Relishers, Door and Sash
Rip Saws, self feed and gang, new
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Sander, Wysong and Miles, 26" disc and spindle, motor drive
Sanders, pneumatic and brush
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Borers, F&E No. 312 3 spindle vert. pb. bd.
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Dovetailer, Dodds 20 spindle BD.
Dowel Driver & Gluer, Bell No. 8 dmd.
Head Grinder, Berlin No. 137 md.
Head Grinder, Mattison No. 231, dmd.
Jointers, New Moak 12", bb. dmd.
Lathe, Mattison 57D bb. & motor
Mortiser, Sidney, single spindle pb. bd.
Mortiser, W & M No. 285—5 spdle. horiz. dmd.
Mortiser, W & M No. 288—6 spdle. horiz. dmd.
Moulder, Yates C8S—8" bb. dmd.
Planer, Buss 44" Sgl. bb. dmd.
Planer, Fay 30" sq. hd. pb. bd.
Planer, Whitney 44" single rd. hd. bb. dmd.
Planers, Woods No. 450—30" dbl. pb. bd. & motor
Planers, new Crescent 24" bb. dmd.
Planers, F&E 30" sec. roll rd. head vee-belt & mtr.
Router, Ekstrom-Carson dmd. No. 236
Sander, Berlin, 31" 3 drum, roll feed bd.
Sander, Mattison No. 134, pb. bd.
Sander, Mattison No. 177 edge belt dmd.
Sander, New Jefferson, hand block, bb. dmd.
Sander, Smith 49" 3 drum endless bed, bd. with motors
Sander, Vonnegut, pneumatic bb. dmd.
Sanders, Columbia 3 drum roll feed, vee-belt, motor drive
Sanders, F & E 60" 3 drum roll feed, dmd.
Sanders, Nash No. 25—10 spdle. dmd.
Sanders, Nash No. 40—6 spdle. dmd.
Sanders, Yates-Amer. No. 413—2 drums 49" endless dmd.
Saw, Beach dbl./cutoff, pb. bd. & Motor
Saws, Amer. No. 9 Tilt arbor bb. dmd.
Saws, Jenkins 105—dbl. cutoff, bb. dmd.
Saws, Mattison No. 207 str. line, bb. dmd.
Saws, variety Y & F, tilt table pb. bd.
Shaper, Buss No. 9 double, bb. dmd.
Shapers, Defiance dbl. spdle bb. dmd.
Shaper, Greenlee No. 180 dbl. spdle. dmd.
Shapers, Beach single spindle, bb. dmd.
Shapers, New Moak single spindle, bb. dmd.
Shapers Whitney, dbl. spdle. bb. dmd.
Sticker, F & E Sash, pb. v-belt & motor
Sticker, sash & door, Hayes-plowing & boring attachment, bd.
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Tenon Heads, single & double end.
Tenoner, Greenlee No. 530 sgl. end with copes, bb. & motor
Veneer Jointer, Jenkins, saw pb. bd.
Veneer Press, Black Bros. 4' x 7'
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Many other items, send your inquiries.

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Band saw, 14 in., heavy duty, new, $75
Band saw, Silver, 32 in. tilt, $150
Blower, Buffalo, 30" slow speed, $85
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End matcher, Sherman, for flooring, $600
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Knife grinder, Rogers, 26 in. automatic, $125
Lathe, P & B auto variety and spdle., $200
Molder, Smith 6 in. 4 side, $400
Mortiser, Greenlee, ver. HC, with motor, $225
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Saw, Crescent variety with 5 HP motor, $150
Planer, Dennis, 30x6 sgl. cabinet heavy, $450
Sander, Variety and handle, Mattison 111, $100
Saw, Yates auto., dbl. cut-off, 11 ft., $550
Saw, Yates, No. 229, 11 ft. auto. dbl., $550
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Saw, table, 10", BB tilt, $60
Sticker, Smith, good, 6 in. one side, $250
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Sash Clamp—Fay & Egan

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1—Printer, Connell-D 22x44" 2-c Boxboard
2—Ripsaw tables, Mereen-J No. 445 latest elec. carr.
2—Sanders, Nash No. 53 elec. auto round stock
1—Sander, Smith 505-B 43" 3-d end-b elec.
1—Sander, Yates-Ameri. 8-33 67" 3-d b-b. end elec.
1—Sash Sticker, American No. 1 4" 2-side
1—Saw, Beach, late model 80", dbl. elec. cut-off
2—Saws, Mereen-J No. 460 latest elec. carr. cut-off
Send your inquiries; get our mailing list

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(Case Goods)

Must be expert color matcher in stains and lacquers. Take complete charge all finishing operations. Plant located near Peoria, Ill. Future assured for right man. Give details of past employment and experience, salary expected first letter.

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Greenlee No. 356 motor-driven single-spindle vertical borer.
Single-spindle Fay & Egan No. 1 vertical borer.
Multiple-spindle vertical Fay & Egan borer.
Andrew vertical gang borer.
Greenlee No. 386 vertical gang borer.
Greenlee No. 369 vertical gang borer.
American No. 2½ single-spindle horizontal boring machine.

CLAMPS

Handy No. 103 frame clamp.
Taylor revolving clamp carrier, 40-sections.
High Point drawer clamp.

DOVETAILERS

One 12-spindle Dodds dovetailer.
Pair 12-spindle Dodds dovetailers: Each equipped with Teague automatic feed for doing fronts, backs and sides. With motors.
Pair 25-spindle Dodds dovetailers with Teague automatic feed.

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60-in. diameter ball-bearing cooling fan.
60-in. double ball-bearing shaving exhaust fan with 25-h.p. motor.

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New Union 54-in. No. 31 double rubber roll resin glue spreader.
Practically new Black Bros. 12-in. motor-dr. edge glue spreader.
Francis 72-in. and 84-in. No. 200 plate glue spreader.
New Union conveyorized edge glue spreader for resin glue.

GRINDING ROOM EQUIPMENT

American No. 9 automatic knife grinder.

JOINTERS

12-in. Yates No. 199 motor-driven ball-bearing round-head.
Diehl No. 60 direct motor-driven glue jointer.
Yates No. 213 direct motor-driven glue jointer.

LATHES

Yates 42-in. No. 74 automatic lathe ball-bearing.
Mattison 42-in. No. 57-D with motor.

MORTISERS

Wysong & Miles No. 288 multiple-spindle mortiser.
Wysong & Miles No. 286 hinge seat mortiser.
Greenlee single-spindle vertical mortiser.

MOULDERS

9-in. Yates-American C-55 electric moulder.
Vonnegut 12-in. electric moulder.
Newman 12-in. electric moulder.

SINGLE PLANERS

New Crescent P-24 direct motor-drive round-head with grinder.
Yates No. 177 direct motor-drive round-head with grinder.
Oliver Strait-o-plane.
30" Buss Direct Motor Drive ball-bearing single Planer with grinder

DOUBLE PLANERS

Yates 30-in. No. 177 double direct motor-driven planer.
Yates-American 30-in. B-24 double direct motor-driven fast-feed heavy-duty planer.
Whitney 40-in. No. 97 double planer, direct m.d.
Whitney 36-in. No. 24 direct motor-driven, ball-bearing.

SANDERS

Yates-American 61-in. 8-23 direct motor driven ball-bearing roll feed.
Yates-American 43-in. No. 433 direct motor-driven endless-bed.
Yates-American 43-in. No. 431 3-drum direct m.d. endess-bed.
Wysong & Miles No. 294 automatic stroke sander.
Mattison No. 124 automatic stroke sander.
American No. 7 oscillating spindle sander.
Fay & Egan direct motor-driven ball-bearing endless-bed.
Pearson waterfall sander.
Nash No. 10 automatic turning sander.

RESAWS

One circular resaw.
42-in. J. A. Fay & Egan No. 58 combination band scroll and resaw.

CUT-OFF SAWS

Porter C-43 straight-line direct motor-drive.
Newman swing cut-off saw.
Beach ball-bearing roller table double cut-off saw.
Jenkins No. 105-A motor-driven ball-bearing chain-feed double-cut-off saw.
Wilkin-Challoner motor-driven ball-bearing chain-feed double cut-off saw.
Yates-American No. 2 direct motor-driven roller table double cut-off saw.

RIP SAWS

Mattison No. 207 direct motor-driven ball-bearing glue joint rip saw.
Yates-American direct motor-driven ball-bearing chain feed rip saw.
Fay & Egan No. 504 direct motor-driven ball-bearing self-feed rip saw.
American No. 15 ball-bearing chain-feed rip saw.
New Mercen-Johnson No. 441 gang rip saw.

VARIETY SAWS

Yates-American No. 1 direct motor-drive ball-bearing tilting-table.
Buss direct motor-driven ball-bearing tilting-table.
Crescent direct motor-drive ball-bearing tilting table.
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New Crescent Type S-2 single-spindle with 2-h.p. motor.
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TENONERS

Jenkins No. 95 electric double-end tenoner.
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Tannewitz—Greenlee—American—Crescent—Moak 36" BB M.D.
Yates-American 36" BB M.D.
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American 42" V-belt M.D.
Tannewitz 42" M.D.

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Yates No. 312 44" chain-feed hand rip
Newman No. 117 circular resaw BB M.D.
McDonough 62" Vertical Band Resaw

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Greenlee No. 363 6-spindle universal M.D.
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Y-A U-12 single-spindle, vertical, direct m.d.
Greenlee No. 356 single-spdle. vert., d.m.d.
Andrew single-spindle vertical, M.D.
Greenlee 36-in. No. 369 vert. gang, 8-spd., m.d.
Root "B-M" 16-spindle, cluster hd., motor-dr.
Valley City 2-spindle radial.

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Sturtevant No. 25-30-35 Mill Exhausters

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Taylor 6-ft. 12-sec. wheel type clamp carrier.
Black Bros. 10' 50-sec. power feed
Black Bros. No. 220 28" dble. resin spreader
Greenlee No. 599 frame and furniture clamp

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Hanchett band saw brazer.
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Covel-Hanchett No. 325 thin knife grinder

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15 kw sec. current AC 220/120/3
25 kw sec. current AC 220/110/3

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Smith—Colladay—Jones Superior M.D.

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Porter, American, Oliver, Sidney, Fay & Egan from 8" to 30" wide—several have feeding attachments—tell us what you need
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Vonnegut 12-in. electric and freq. chgr.
Smith 8-in. drop bed, V-belt, m.d.

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Oliver No. 299D 24" sgle. bb DMD
Porter No. 401 24" round head, BB D.M.D.
Whitney 30" single BB M.D.
Buss 36-in. single, ball bearing, motor drive
Berlin No. 177 30-in. b.b. belt dr.
Oliver No. 61, 24-in. single Motor Dr.
Buss 26" & 30", dingle B.B., M.D.

ROUTERS
Carter Type TR—Porter No. 600—Ekstrom-Carlson No. 24—Onsrud Type A4RR 2-spindle radial—M.D.

SHAPERS
Oliver No. 285, single BB M.D.
Whitney No. 163, S.S. motor on arbor
Whitney No. 182, sgl., D. M.D., 56x40" table
Porter No. 206 SCD double, short belted, m.d.
Whitney No. 134 double-spindle, dir. M.D.
Amer. No. 20 dbl.-spdl. dir. M.D. freq. changer
Sidney double b-b short belted M.D.
Fay & Egan dbl.-spindle belted M.D.
Advance double-spindle, BB M.D.
Moak No. 7 single, B.B., M.D.

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Smith 43" 3-drum endless-bed M.D.
Yates No. 401 43" 3-drum roll feed.
Buss-2-spindle vertical, oscillating belt drive
Duplex moulding sander.
Wysong & Miles No. 164 universal belt, m.d.
Mattison No. 124, 6-ft. auto. stroke M.D.

MITRE SAWS
Greenlee No. 495 S. Tilt arber, rolling table
American 12-in. tilting arbor, motor-drive
Sidney No. 16A T.T., D.M.D. rolling table sec.

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Monarch X 36A radial arm, D.M.D.
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Greenlee No. 451 auto. cut-off and dado
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Y.A. G-44 straight line 7½ h.p. motor
Porter 43 SLA straight line D.M.D.

RIP SAWS
Yates G77 chain-feed, D.M.D.
Smith No. 335A self-feed, belt or motor-drive.
American No. 1 self-feed, motor-on-arbor.
Clement hand-feed, belt or motor drive
Mattison 205M chain feed motor dr.
Newman No. 37 power feed D.M.D.

TENONERS
Greenlee No. 534, Single end wth cut-off, no copes, dir. m.d.
Smith No. 225CE single-end with copes.
Houston single-end with copes, rolling table
Wilkin-Challoner No. 70 90x48 in. double end, electric

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Tannewitz 36" DMD 32" under guide
36" American Tannewitz, Crescent Oliver
27" Crescent Band Saw
20" Crescent, M.D.
Yates, V40, 48" B.B. Angle Bandsaw
Northfield BB & DMD, 20" to 36"

BORERS

Andrews Multiple vertical
Horizontal—2 Spindles—Various makes

DOVETAILERS

Dodds, 10, 15, 20 spindle

JOINTERS

American 12" Wedge Bed, BB
American 16" Wedge Bed, BB

LATHES

Oliver No. 20 BB CMD patternmakers

MORTISERS

Wysong & Miles 5 Sp. Horizontal, B.D.
New Britain No. 3
New Britain No. 7

NAILERS

Morgan 6 track closed back
Morgan 12 track open back

PLANERS

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Crescent P24 BBMD grinding attachment
Greenlee No. 110 DMD Grinding Attach.
Whitney No. 32, 40", DMD

RIPSAWS

Fay & Egan 30" dbl. No. 140 4-knife Rd. hd.
New Belsaw 7½ HP Multiple Model 840
12" Colloday L. Powers, HB Smith, Crescent Sidney
G-77 Yates BB DMD, Motor Feed

SANDERS

10" Peerless Horizontal BB
10" Porter Cable B 3 MD
Nash No. 10—54"
Peerless Horizontal 14" - 20" - 26"
43" 2-Drum Endless bed BB MD No. 399 Fay & Egan
W & M Underbelt DMD
Yates American Underbelt DMD
Porter Cable 15" disc DMD
Porter Cable Wet BG 8 MD
Peerless 14" vertical, belt, BB

SAWS

American No. 10 Model 3 DMD
Beach Tilt arbor DMD
DeWalt radial saw 3 and 5 HP
Fay & Egan BB Tilt Top
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Walker Turner, Wallace, Yates Amer., Tannewitz, etc. in medium sizes
Whitney 177, DMD, tilt, Arbor

SHAPERS

L. Powers Single BB—M.D.
Union Single Spindle, BB, MMBD
Defiance Double Spindle, DMD with tilting & Sliding heads
Whitney, No. 102 Automatic Shaper
Yates N1 DMD, w/Freq.

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McKeage New Sgl. end T & B copes 3 mtrs.
Fay & Egan, No. 70 Single End

MISCELLANEOUS

American dowel machine BB
Covel-Hanchett Band resaw grinder MD
Metal working lathes, presses & power shears
Morgan Box Board matcher
DeWalt Timber Cutter, 10 H.P.
Porter 43C Str. Line Cut Off Saw, L. or R.
Chicago Riveting Machines, Style No. 90

NEW MACHINERY

Door Clamp, Williamsport Amer.
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Combination 20th Century Cresson Morris
Taylor Clamp Carrier, 60 Section, 6' 6"
H & A swingsaws No. 5—No. 25—No. 55
American single borers DMD
American Single Shapers BB MM S-30
McCartney High Speed BB Single Shaper
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Grinders—from ¼ HP to 5 HP bench and floor models DMD
Buffers 1-2-3-5 HP DMD
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Electric drills, Hand Power Saws
DeWalt Radial Saws, ½ HP to 7½ HP
Northfield No. 1 tilt top saw tables
Northfield No. 4 tilt arbor saw tables
8" to 16" BB Jointers
20" to 36" BB fully guarded bandsaws
24" BB planers, single MD
Metal working lathes, presses & power shears and brakes.
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Endless canvas belts, large variety of lengths and widths, also sand belts for Skilsaw, Porter Cable and Vonnegut brush sanders. Accessories and supplies, tremendous lot both new and used. Also band and resaw blades.

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American Machinery & Motor Co., Inc.

22 HOWARD ST., NEW YORK 13, N. Y.

FOR GOOD REBUILT WOODWORKING MACHINERY YOU CAN'T BEAT G-M-C

Offered for Quick Delivery—Subject to Prior Sale:

BORERS:
Yates-American No. U-31 Single Spindle Vert., B.B.
Root Style "B" 8-spdle. Vert., Motor Driven
Root Style "GMB" Sgl. Spdl. Vertical, B.B., M.D.
Greenlee No. 356 Vert. Spdle. Borer, B.B., M.D.
Wysong & Miles No. 283-B Vert. Single Spindle.
Andrews 48" Horizontal, 5 spindles, Power Feed.
Andrew 72" Horizontal, Four or more Spindles, M.D.
Andrew 60" No. 18-A Vert. Multiple Borer, M.D.
Towsley Two-Spindle Radial Horizontal, M.D.
Valley-City 2-spindle Radial Horiz. m.d.

CARVERS:
Ekstrom, Carlson Nos. 102 & 104 Sgle. Spdl. b.b., M.D.

CLAMPS:
Handy No. 55 Air Operated Chair Clamp, 34" opening.
Bell Air Operated Cabinet Clamps, plates 24"x48".
Taylor 6½ ft. 40-section Style No. 80, Power Driven.
Taylor 6½ ft. 30-sec. with 120—32" clamps

DOVETAILERS:
Wysong & Miles No. 290 Automatic Production, M.D.
Dodds 10, 15, 20, 25 Spindle, spiral gears, M.D.

DOWEL MACHINES:
Bell No. 50-A Dowel Machine, B.B., Cap. ¼" to 2".
Hawker No. 5 motor driven, 5" capacity.

FREQUENCY CHANGERS
General Electric 5-10-15-25-33 KW, D.M.D.

GLUE SPREADERS:
Union 60-inch No. 31 Dbl. Roll P.F. Resin, M.D.

GLUE JOINTERS:
Jenkins No. 3-CD Cont. Chain-feed, B.B., M.D.
Jenkins No. 3-C Cont. Chain-feed, B.B., Belted M.D.
Yates-American No. 213 Continuous Chain Fd. Glue Jointer, B.B., D.M.D.

HAND JOINTERS:
American 16" Ball bearing, motor driven
Yates-American 24-in. D.M.D., B.B., Jointer, Rd. Hd.

JOINTER FEEDERS, AUTOMATIC
Porter 30" Jointer, with Herzog Feeder, m.d.
Smith 24" and 36" Automatic Facing Pl., B.B., M.D.

LATHES:
Mattison No. 57-D Automatic, Ballbearing, M.D.

MORTISERS:
Crescent Vertical Hollow Chisel, ¾" cap., b.b., M.D.
New Britain No. 2 Chain Saw, M.D.
Greenlee No. 228 Hollow Chisel Single Spindle, M.D.

MOULDERS:
10" Woods No. 132-M Ballbearing, all Electric

PLANERS:
36" Whitney No. 29 Single Planer, Motor Driven
Buss 30-in. Mod. No. 88 Double B.B., D.M.D.
Whitney 40" No. 33 Heavy Duty Dble Surf. B.B., M.D.

ROUTERS:
Ekstrom, Carlson No. 126 with 1½ HP motor.
Ekstrom-Carlson No. 327, with 5 H.P. Motor
Onsrud Single and Double Radial Arm Routers.
Onsrud W-265 Ballbearing, motor driven.

BELT SANDERS:
Curtis Mod. 8-V Semi-Auto. Panel Belt Sander, 10 ft.
Mattison No. 137 Hand Block Moulding, M.D.
Wysong & Miles No. 275 Hand Block, Motor Driven.
Wysong & Miles No. 270 Horiz. Osc. Edge, M.D.
Yates-American No. 427 Hand Block, Motor Driven.
Yates-American No. 430 Hand Block, self-cont. Mtr.
Mattison No. 115 Variety, with 5 HP built-in motor.
Peerless 9" Vertical Ballbearing, Motor Driven.

DRUM SANDERS:
American-Columbia 36" No. 2 Roll Fd., Motor Dr.
Solem 49 inch Type S-3-M Triple Drum Endless Bed
Solem 73" No. 430 Triple Drum Endless Bed, b.b., m.d.
Yates 30" Model No. 431 3-drum Endless Bed, M.D.
Yates (Berlin) 73" No. 401 Triple Drum, Roll Fd
Yates (Berlin) Six-Drum, 31" capacity, m.d.

MISCELLANEOUS SANDERS:
Nash No. 65, 56" Automatic Turning Sander, 4 spdls.
Nash No. 25, 48-in. Auto. Turn., 10 spdl., B.B., M.D.
Nash No. 25, 72-in. Auto. Turn., 10 spdl., B.B., M.D.
Ekstrom, Carlson No. 18 Pneu. Drum Sander, M.D.
Oliver 15" Single Disc Sander, ½ HP motor.

BAND SAWS:
Tannewitz 42-in. Type RHE Band Saw, B.B., M.D.
Tannewitz 42-in. Type "R" Band Saw, B.B., D.M.D.
Jones-Superior 42-in. No. 55 Band Saw, V-belt M.D.
Crescent 40-in. tilting frame (angle) Band Saw w/mtr.
Yates-Amer. 36-in. Type V-36 Band Saw, B.B., D.M.D.
Crescent 36" Ballbearing, Direct Motor Driven
Crescent 20-in. Band Saw, ballbearing, motor driven.

CUT-OFF SAWS:
DeWalt Radial Arm, 3 HP and 7½HP motor.
Oliver No. 94 Straight Line, Motor Driven, with steel tables
Porter 5' Ceiling Type Swing, motor on arbor.
Yates-Amer. G-35 swg. cut-off, 5 hp b.b. mtr-on-arbor
Fay & Egan 50-A swg. Cut-off, 5 hp b.b. m-on-arbor

RIP SAWS:
Mattison No. 207-M Chain Fd. Straight Line, B.B.
Yates-American No. G-67 Chain Fd. Straight Line Rip and Edging Saw, B.B., M.D.
Yates-American No. G-77 Chain Fd. Straight Line Rip and Edging Saw, Ballbearing, Motor Driven.
Fay & Egan No. 110 Self Fd., 10 HP mtr., V-belt dr.
Fay & Egan No. 386 b.b. Chain Fd., motor-on-arbor
Hermance No. 36 Chain Feed, Direct Motor Driven.
Yates G-2 Chain Feed, 10 HP motor-on-arbor.

VARIETY SAWS:
Moak No. 16-A Tilt Table, motor-on-arbor
Crescent No. 9 Tilt Table, motor-on-arbor
Tannewitz Type "R" Double Arbor, belt drive
Sidney (Famous) Tilting Table, Motor-on-arbor.
Fay-Egan No. 500 Tilting Table Variety Saw, B.B.
Yates-American No. 1 Tilt Table, B.B., M. on A.
Yates-Amer. No. 8 Comb. Saw and Dado Machine M.D.

SHAPERS:
Porter No. 201 Dbl. Spdle. B.B. with 2 Vert. Mtrs.
Whitney No. 250 Double Spindle, 7½ HP Motors.
Greenlee No. 180 Dble. Spdle. B.B. Motors on Spdles.
Whitney No. 134, 139, 156, Dble. Spdle. B.B. Motors.
Advance No. 122 Double Spindle, Ballbearing, M.D.
Amer. No. 30 Dble. Spdle., B.B., 5 HP mtrs. at rear
Smith Double Spindle, Ballbearing, Motors-on-spindles.
Fay & Egan No. 452 Dble. Spdle., b.b. M.D.
Moak No. 7 Single Spdle. B.B., Vert. Motor.
Crescent Model S-2, Single Spdle. B.B., Vert. Motor.
Onsrud W-200 Single Spdle., High Spd. B.B., M.D.

TENONERS:
American Automatic Blind Slat Tenoner
Jenkins No. 95 Double End Tenoner, motor driven
Smith Single End, Copes, Cut-off Saw, Motor Driven.
Wilkin-Challoner Dble. End, B.B., M.D. Cap. 66"x26".
Fay & Egan No. 2 Single End, with Copes, Motor.

VENEER EQUIPMENT:
H.P.M. Hydraulic Veneer Press, 72"x30" with Pump
Francis Hyd. Veneer Press, Cap. 72"x30", w/MD Pump.
Merritt 100"x78" Veneer Redrier, 12 plates, M.D.
Merritt 84"x54" Veneer Redrier, 8-10-12 plates, M.D.
Merritt 100"x52" Redrier, 10 plates, M.D.
Dennis Cont. Chain-feed Veneer Jointer, 6-knife Head

MISCELLANEOUS
Buffalo 60" ballbearing motor driven Exhaust Fan
Gardner-Denver 10"x12" Air Compressor, 60 HP mtr.
Wardwell Model K-5 Saw Filer, m.d.
Covel-Hanchett 38" Model GK Knife Grinder, m.d.
Food Machinery Co. Type CBM 20-track Cheese Box Nailer m.d.

THE ABOVE IS A PARTIAL LIST—SEND US YOUR INQUIRIES—WRITE, WIRE OR PHONE
ALL OFFERINGS **ARE SUBJECT TO PRIOR SALE**
(We are always in the market for Complete Plants).

GREEN MACHINERY COMPANY

23 NORTH JEFFERSON STREET CHICAGO 6, ILLINOIS PHONE FRANKLIN 2-8940

WOODWORKING DICTIONARY

FADER (Fād'er) n. synonym for quality, intelligent service and understanding of the needs of woodworking plants. Also means economy in the purchase of equipment.

SAVE NOW! BUY NOW!

FADER REBUILT MACHINERY

BAND SAWS
Superior 36", steel spoked, motor driven
Superior 42", ballbearing, motor driven
American 36", ballbearing, motor driven

BORERS
Greenlee No. 369, 5' Vert. Multi-Spdl., D.M.D.
Greenlee No. 369, 4' Vert. Multi-Spdl., M.D.
Root Style C 6 Ft. Vertical 8 Spindle Ballbearing, direct motor driven
Valley City, 2-spdl., adj. radial, motor driven
American 2-spdl., adj., radial, motor driven
American Sgl. Spdl, horizontal, motor driven
Bell 3-spdl., adj., horizontal, M.D. Power Feed
Superior 2 Spindle Adjustable Radial Ballbearing, direct motor driven
Wysong & Miles No. 283B, Sgl. Spdl. Vert., B.B. D.M.D. (Like New)

CLAMPS—ASSEMBLY
Bell Chair Assembly, Air Operated (like new)
Handy Mitre Clamp, 20"x26" maximum

CLAMP CARRIERS
Billstrom, 15 Section 6½ ft. 30" clamps per section
Handy 18-sec., 5 ft. wide, 38" clamps per sec.

DOVETAILERS
Dodds, 15-spdl. motor driven, spiral gears
Dodds 12 Spindle, motor driven, spiral gears

DOWEL MACHINERY
Bell No. 4-A capacity ¼"-2", M.D., B.B.
Hawker No. 2, capacity ¼"-2", M.D., B.B.
Nash No. 4 Dowel Rod Sander, motor driven

GLUE SPREADERS
Bell No. 9. 72" Flat Plate Gluer

JOINTERS
Fay & Egan No. 217, Continuous Chain Feed
Jenkins-Falls, Continuous Chain Feed, M.D.
Superior 16", Round Head, B.B., M.D.
American 12", Round Head, motor driven
Superior 12", Round Head, motor driven

JIG SAWS
American, self-contained
Oliver No. 173 Self-contained, D.M.D.
Superior, Self-contained, motor driven

MORTISERS
Greenlee No. 228 Vert., Hollow Chisel, M.D.

MOULDERS
Hermance No. 50 10 Ft. 4-side, motor driven
American No. 1-6" 4-side motor driven
Yates-American No. C-99, 6", 4-side, D.M.D. B.B. Electric, Hopper Feed, Freq. Changer
Mattison No. 229, 10", 4-side, D.M.D., B.B., Elec.
Houston, 10", 4-side

PLANERS
Whitney No. 24, 30" Double Cabinet, B.B. D.M.D.
Buss No. 4-A, 26", Sgl. Cabinet, B.B. D.M.D.
Buss No. 4, 30", sgl. cabinet, D.M.D., B.B.
L. Power 24"x 6" Planer-Matcher, motor driven
Yates No. 156, 26", single, motor driven
American No. 112, 30" single, motor driven

ROUTERS
Ekstrom-Carlson No. 126 Hi-Speed, B.B., D.M.D.
Porter No. 500, B.B., Direct motor driven
Porter No. 502, 2-spdl., B.B., D.M.D.

SANDERS
43" H.B. Smith, 3-Drum Endless Bed, D.M.D.
Indiana No. 7 Hand Block Belt B.B., d. m. d.
American 31", 2-drum, Roll Feed, M.D.
Curtis 8' Automatic Stroke, motor driven
American No. 2, 24" Disc and Oscillating Spdl.
American No. 5 Drum Sander, D.M.D.
Nash No. 4 Round Stock and Dowel Sander

SHAPERS
Yates N-4, Sgl. Spdl, High Speed, B.B., D.M.D.
Porter, Sgl. Spdl., high speed, B.B., M.D.
Whitney No. 34, Dbl. Spdl, B.B., D.M.D.

SAWS—CUT-OFF
Buss Double Cut-off, motor driven
Racine Floor Type—motor driven
Beach Roller Table Double Cut-Off B.B.-D.M.D.

SAWS—RIP
American No. 15 Chain Feed, motor driven
Fay & Egan No. 264 Self Feed, D.M.D.
Defiance No. 21-D Chain Feed—motor driven
Mattison No. 207 Chain Feed— m. dr.

SAWS—VARIETY
Buss Tilting Table, motor driven
Tannewitz Type J, Tilt Arbor, B.B., D.M.D.
Pettingell, Tilt Arbor, Roller Table, M.D.
Tannewitz, Tilting Table, motor driven

TENONERS
McKnight No. 71C Chair Back Tenoner, M.D.
Towsley Single End, Tenon heads, lower cope, cut off saw, motor driven

VENEER MACHINERY
Black 36"x72" Electric Press
Francis 36"x72" Hydraulic Press
Dennis Taping Machine, motor driven
Dennis Continuous Feed Veneer Jointer, mtr. driven
Jenkins-Falls Veneer Jointer, B.B., motor driven
G.M. Diehl No. 89, Tapeless Veneer Splicer, M.D.
Frank Diehl Cont. Feed Veneer Jtr., B.B., D.M.D.

MISCELLANEOUS
Morgan 16" Lock Corner Machine, motor driven
Bell No. 56 Hand Fd. Chucking Mach., b.b. d.m.d.
Zoller Power Mitre Chepper, motor driven
Fay & Egan No. 253, Automatic Knife Grinder, 30"
Gardner-Denver, 2-stage, water-cooled Air Compressor, 10 HP.
Sturtevant 36" B.B. Exhaust Blower M.D.
Doig 9-track Closed Back Auto. Nailing Mach

FADER WOODWORKING EQUIPMENT QUALITY

A. L. FADER & COMPANY
605 W. Washington Blvd., Chicago 6, Ill., Phone STate 2-7634

VALUES YOU CAN'T BEAT

Greenlee No. 370 Multiple Horizontal Borer, 65" capacity

Andrews 5 ft. Multiple Vertical Borer

Diehl No. 60 Glue Jointer, ballbearing, motor drive

Francis 24 in. Double Roll Glue Spreader, rubber rolls, md

Yates-American C-89—6 in. Electric Moulder

Mattison No. 229—6 in. Electric Moulder

Vonnegut 8 in. Electric Moulder, hopper feed

Yates-American C-88—8 in. Electric Moulder

Woods No. 76-M—30" Heavy Duty Single Planer, ballbearing, 30 H.P. direct drive

American No. 666—36 in. Double Cabinet Planer, d.m.d.

Buss No. 4—30 in. Double Cabinet Planer, d.m.d.

Onsrud W-240 Router, 5/5 H.P. two speed, S-9 Turning attachment

Tannewitz Model J Tilting Arbor Saw, d.m.d. 5 H.P.

Mattison No. 207 Chain Feed Ripsaw, motor driven

Mattison No. 207 Chain Feed Ripsaw, 10 H.P. V drive

Yates-American G-77 Chain Feed Ripsaw, motor driven

Diehl No. 75 Chain Feed Ripsaw, motor driven

Mereen-Johnson No. 440 Gang Cleat Saw, ballbearing

Capital 64 in. Veneer Clipper, 3 H.P. gear drive

Coe Model W—100 in. Veneer Clipper, 5 H.P.

The above listings are a few selections from one of the largest woodworking machinery inventories in the United States. Write for quotations on any requirements.

LAKESHORE MACHINERY CO.

Dept. H. **2200 N. 11th St.** **Milwaukee 5, Wis.**

Rebuilding

AT ITS BEST!

At Left, a partial view of our warehouse looking toward the rear, showing only about one-third of our stock.

Owing to our very large stock changing almost daily, we are omitting our stock list. We have about 350 new and used machines. Tell us exactly what you want, and advise phase, cycle and voltage of your current.

[illegible] at Osborne & Sexton, you will find an organization skilled in the rebuilding of all

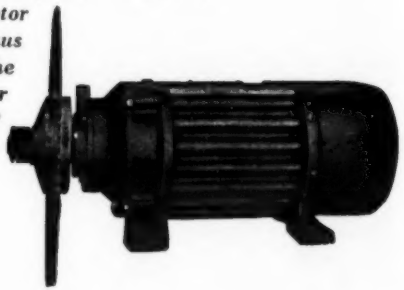
anteed and must be satisfactory, as our users are the judges. Whether your machines require

what you want, and advise phase, cycle and voltage of your current.

Here at Osborne & Sexton, you will find an organization skilled in the rebuilding of all types of woodworking equipment. Every machine as it enters the plant is carefully checked and inspected by men whose knowledge and experience make them familiar with every detail . . . just as doctors make a thorough diagnosis before a remedy is prescribed. All parts are then removed . . . in fact the machine is completely stripped to the frame. Every box is rebabbitted . . . every spindle ground accurately to size . . . drums, cylinders, heads, and pulleys are balanced . . . knives are ground and balanced . . . every shaft or stud showing signs of wear is replaced.

Modern production and rebuilding methods employed at O & S provide further assurance that the equipment which we literally "remanufacture and assemble" will meet your exacting demands. Every machine rebuilt or sold is guaranteed and must be satisfactory, as our users are the judges. Whether your machines require rebuilding, or you need machinery to help you meet the competitive situations which are ahead, be sure to contact Osborne & Sexton in Columbus. You will find a friendly organization . . . capable and willing to work with you on your engineering and production problems. Write us today.

MOTORS Totally enclosed, dust proof, fan cooled, ball bearing saw arbor motors, 3600 r.p.m. From 1 h.p. to 15 h.p. Measures only 3¼" from center of motor shaft to flatted top. Thus facilitating the use of the smallest possible diameter saw blade. (2, 3 & 5 HP motors available for quick shipment.)



A large stock of Standard Frame 3 phase motors and controls from 1 HP to 125 HP.

ENGINEERS AND RE-MANUFACTURER

The Osborne and Sexton MACHINERY CO.

COLUMBUS 16, OHIO

"If it's for Woodworking . . . We Have It"

BAND SAWS: 20" Crescent Ball Br. M.D. New
32" Crescent Bab. Br. Motor Dr.
Crescent 36" Ball Br. Motor Dr.
Oliver 36", B.B., 7½ h.p. built in
New 14" Walker Turner B.B. Band Saw, $105.00
Tannewitz 36" B.B. Motor Drive

BORING MACHINES: Root Vert. Sg. B.B. 2 h.p. on spl.
Dennis Vert. Sgl. Universal
Moak 2 spl. Hor. Radial M.D.
American 2 spl. Hor. Radial M.D.
Andrews Vert. 42" 5 spindle
Andrews Vert. 30" 4-6 spindle
Greenlee No. 386, 12 ft. 10 spl.

BOX MAKING MACHINERY: Gramme Cigar Box Nailer
Doig 2 tr. Cigar Box Nailer
Doig Close Back Nailing Mch. 3-5-6 tr.
Doig Open Back Nailing Mch. 14-15-21 tr.
Doig 12 tr. O. B. Cleater
Gramme 3 tr. Cigar Box Nailer
Box Board Matchers-Hall & Brown-Luther
Tidey Box Makers Rip Saw
Mereen Johnson B. M. Rip Saw
Beach B. M. Carriage Cut Off Saw

CLAMPING MACHINERY: Handy No. 100 Bed Clamp
Handy No. 116 Clamp Carrier, 12 ft.
Lancaster Pneumatic Chair Clamp
500 Spring Clamps No. 1-2-3½ price

CUT OFF SAWS: Oliver No. 94-D St. Line, 95% New.
Hall & Brown No. 134 C. O. & Dado Automatic
Holmes No. 102 Foot Pedal C.O. Saw
Porter Hydramatic C. O. Saw
DeWalt 5 Hp., 3 ph.
Greenlee No. 453 Auto. Railway C. O. 7½" Cap.
Greenlee No. 456 Auto. Railway C. O. 12" Cap.

DOWEL MACHINERY:
Hawker No. 2 Dowel Machine, rebuilt
Fay & Egan No. 406 Dowel Machine

DADO MACHINES: American No. 11 C.O. & Dado
Fay & Egan No. 5 C.O. and Dado
Hall & Brown No. 134 Auto. C.O. & Dado

ELECTRIC MOULDER:
Mattison No. 229 8" with 15 hp. T & B 7½ hp. Side and 7½ hp. on feed, 220 volt, 60 cy. 3 ph.

JOINTERS:
Yates No. 199 12" Rd. Hd. M.D.
American 16" No. 1 Incline Bed
Fay & Egan 24" Rd. Hd. No. 116
8" Speed Marvel Ball Br. M.D. New

LATHES: Mattison No. 57-B Automatic

MOULDERS:
Fay & Egan No. 184 12", 4 side
Hermance 10" 4 side, Bab. Br.
American 10" 4-side, No. 20
Hermance 8", 4-side Bab. Br.
American No. 505 10" 4 side Bab. Br.
Colladay 5" 4 side

MORTISERS: Beach Vert. H.C. Motor on spl comp.
New Britain No. 7 Chain Comp. table
New Britain No. 4 Chair Comp. with H.C. attach.
Colladay H.C., motor built in
American Hor., H.C.

KNIFE GRINDERS—AUTO.:
American No. 100 St. Wheel Auto.
Oliver No. 485 Oil Stone Grinder

PLANERS AND MATCHERS:
Fay & Egan No. 3331, 5"x6", 4 side
Berlin No. 44, 15"x6", 4 side
Fay & Egan No. 275, 16"x8", 4 side
Lehman 24"x6", 3 side
Fay & Egan Sgl. Spl. Vert.

PLANERS—DOUBLE: Whitney No. 24 36"x7" Double Planer with 4 knife Rd. Hds., clamp type bearings Db. sectional infeed rolls and chip breaker. M.D. 2-25 h.p., 3 phase motors coupled to heads
Berlin 30"x12" Dbl. with 20 and 10 h.p., Motors $950
Yates No. 177 30"x12" dbl. with 4 knife round heads, clamp bearings, divided roll and chip breaker, motor dr. by three motors and control

PLANERS—SINGLE:
Yates Am. B-44 24"x8" Ball Br. M.D.
Powermatic 12"x4" Ball Br. (New)
American No. 1, 20" x 6".
American No. 444 30"x7" Sgl.
American No. 4½ 27"x7"
Parks 12"x4" Motor Dr.
Oliver No. 299, 24"x8", B.B., M.D.
Oliver No. 339 18"x6" B.B., M.D.
Crescent P-18, 18"x6", w. Grinder
Crescent No. 224 24"x6"
Crescent No. 118 18"x6"
Powermatic New 16"x6" Ball Br., $485.00

RADIAL SAWS: Dewalt 5 h.p., 3 ph., Type V-3
DeWalt 5 hp., 3 ph., type G.E.
Multiplex ½ to 5 h.p. New
Walker Turner 2 h.p. 1 ph.

RIP SAWS: Yates G-2 Ball Br. St. Line Motor Dr.
Falls No. 103 St. Line Chain Feed Ball Br.
American No. 2 Hand Feed
Tide Box Makers Rip Hand Feed
Mereen Johnson Box Makers Rip
Mattison No. 205 St. Line M.D.

ROUTERS:
Kelley Elect. Stair Router
Cincinnati Elect. Stair Router
Duro Router, Floor Type

STICKERS:
American 4", 3 side, Top, bottom, outside heads

SANDERS: Smith No. 401D 43" 3 dr. endless bed 4 motors
Berlin 49" 3 dr. Royal Invincible Roll Feed
Berlin 30" 3 dr. roll
Wysong & Miles No. 171 Belt Sander, M.D.
Yates American No. 47-J Comb. 15" disc & 6" belt
Boice Crane No. 2006 oscil. Spindle Sander
Beach Mfg. 48" W.F. Disc Sander
American No. 15 24" sgl. dr. hand feed
Fay & Co. 42" 3 Dr. 4 motors, vee dr.
Mattison No. 115 Variety (Bargain)

SASH COPERS: American Foot Power
Electric Bench Type

SHAPERS:
American No. 1 Sgl. Spl. Ball Br. M.D.
Shimer No. 4 Sgl. Br., M.D.
Fay & Egan No. 265 Db. Spl.
Oliver Sgl. Spl. No. 287 Ball Brg. Mtr. Dr. 95% New

SAW TABLES. Crescent No. 1 Combination
Yates Amer. No. 0 Motor on arbor 3 ph.
Greenlee No. 481 Variety
Crescent No. 3 Dbl. Arbor Universal
Crescent No. 5 Dbl. Arbor Universal
Oliver No. 60 Dbl. Arbor Universal
Atlas-Walker Turner T.A., New

TENONERS: Smith Sgl. End Copes & C.O. Saw
Smith Sgl. End 2 copes
Hall & Brown No. 55 Sgl. with copes
Harris Floor Type Sgl. End Ball Br. with 2 copes

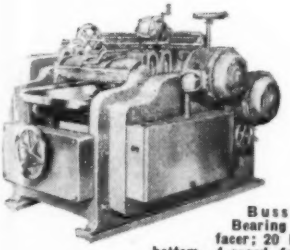
UNIVERSAL WOODWORKERS: Sidney No. 31—5 units, 5 motors
Sidney Jr. 8" Jointer, 20" Band Saw
Sidney No. 30
Crescent No. 58

ERVIN MACHINERY CO., INC.
124-26-28 Boulevard of Allies Pittsburgh, Pennsylvania

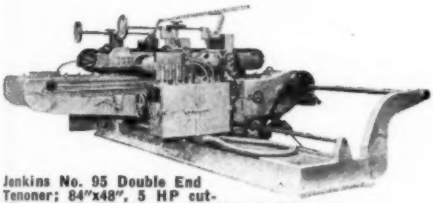
HERE ARE A FEW OF Earle Hart's

BIG VALUES

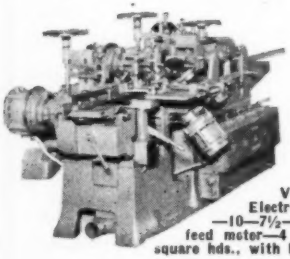
IN USED AND REBUILT WOODWORKING MACHINERY



Buss 8-A 30" Ball Bearing Double Surfacer; 20 HP top, 15 HP bottom, 4-speed feed motor, sectional rolls and chip breaker. Grinding equipment. Rebuilt.



Jenkins No. 95 Double End Tenoner; 84"x48", 5 HP cut-off saws—5 HP tenoner motors—5 HP cope motors—2 HP feed motor. Prompt shipment.



Vennegut 6" Electric Moulder; 10—10—7½—5 HP—4/2 HP feed moter—4 knife round or square hds., with hopper. Rebuilt.

These are representative items from our half-million dollar stock. They are late model machines and are available at substantial savings.

- Greenlee 370 — 100" Horiz. Mult. Borer
- St. Paul 24 Sp. Auto. Carver
- Union No. 31 — 60" Dbl. Roll Spreader
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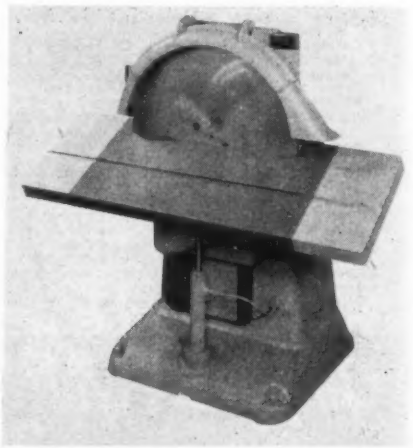

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Abrasive Renewing Compound, 90
Abrasives, 89, 173
Adhesives, 14-15, 17, 25, 42, 69, 116, 130, 158
Air Cylinders, 23

Band Saw Wheels & Tires, 215
Bending Machines, 127
Bits, 59, 149, 181
Blowers, 7
Bolt Driver, 175
Boring Machine, 48, 139, 168
Boring Tools, 59

Carving Machine, 107
Clamps, 72, 79, 173, 175, 183
Clamps, air, 23
Clamps, bar, 72, 79, 173, 175 183
Clamps "C" 72, 79, 173, 175, 183
Clamps, toggle, 72, 79, 106, 173, 175, 183
Clamps, veneer, Inside Front Cover
Collars, shaper, 171, 176
Cutter Heads, 11, 38-39, 73, 178
Cutters, 73, 170, 172, 177, 181
Cylinders, air, 23

Dovetailers, 80
Dowel Machines, 41
Dowels, 177
Drill Presses, 18-19, 64-65
Drilling Attachments, 59
Dry Kiln Equipment, 133, 136
Dry Kilns, 133, 136
Dust Control Equipment, 161, 185

Enamel, synthetic, 86

Factory Trucks, 171, 177, 178, 181
Fasteners, 21, Inside Back Cover
Finishes, 86

Glue, resinous, 14-15, 25, 69, 130
Glue, resorcinal, 17
Glue Guns, 60, 176
Glue Pots, Inside Front Cover, 171, 182
Glue Spreader, Inside Front Cover, 60
Goggles, 102
Grinders, knife, 12, 82, 97

Hardboard, 2
Humidifiers, 54

Instruction, 137

Jointers, 1, 31, 105, 164, 187

Kiln Drying, 53, 126
Knives, moulder, 6, 16, 30, 61 100, 171
Knives, planer, 6, 16, 30, 61, 100, 171
Knives, shaper, 6, 16, 30, 61 100 171

Lacquer, 86
Lathes, 134
Lumber, 131, 156, 159, 179
Lumber Drying, 53, 126

Matchers, 66
Miter Cutters, 185
Moisture Registers, 78, 138

Mortise Chains, 173, 175, 184
Mortisers, 80, 153
Moulders, 31, 76

Nailing Machines, 94, 177

Packaging Materials, 28
Paints, 86
Planers, 1, 9, 13, 29, 66, 71, 76, 187
Plywood, 120, 140, 145, 148, 152, 155, 157, 179
Plywood Presses, 129, 154
Preservatives, 34

Resaws, band, 179, 182
Resins, 42
Routers, 173

Saddle Seat Machine, 51
Safety Equipment, 102
Sanders, belt, 36, 80, 103, 105, 213, Back Cover
Sanders, contour, 10, 32-33, 52
Sanders, drum, endless bed, 4, 62
Sanders, portable electric, 20, 77, 84, 91, 99, 132, 216
Sanders spindle, 183
Saw Blades, band, 112-113, 172, 182
Saw Blades, carbide, 16, 211
Saw Blades, circular, 111, 160, 180, 211
Saw Gauges, 185
Saw Guards, 112-113
Saw Guides, 139
Saw Setting Machines, 58, 104
Saw Sharpeners, 117
Saws, band, 18-19, 26, 64-65, 105
Saws, cut-off, 147
Saws, portable electric, 162
Saws, radial arm 18-19, 64-65
Saws, rip, 24, 31, 151, 169
Saws, variety, 18-19, 64-65, 92, 114, 167
Saws, tilting arbor 18-19, 64-65, 92
Screws, cap, set, socket & machine, wood, 27, 83, 101, 108, 135
Services, 53
Shapers, 22, 105, 109, 174
Slides, table, 165
Stains, 86
Stapling Equipment, 21, Inside Back Cover
Surfacers, 3, 9, 13

Tac Rags, 180
Tackers, 21, Inside Back Cover
Tenoners, 8

Valves, 23
Varnish, 86
Veneer, 128, 131, 150, 156, 159
Veneer Dryers, 125
Veneer Jointers, 31, 118
Veneer Lathes, 125
Veneer Splicers, 31
Veneer Tables, 184

Washers, 175
Wood Plastic, 93
Wood Preservatives, 34
Woodworking tools, 112-113

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Index to Advertisers

A

A. A. A. Saw & Tool Service & Supply Co. ..191-192
Abrasive Products Inc. 89
Adhesive Products Corp. 116
Adjustable Clamp Co. 183
Aetna Plywood & Veneer Co. 120
Aget-Detroit Company 185
American Floor Surfacing Machine Company 77
American Machinery Exchange 188
American Machinery & Motor Co. 198
American Polymer Corp. 42
American Screw Company 135
American Varnish Company 86
Amos-Thompson Corp. 156
Anthe Machine Works 177
Armstrong Machine Works 54
Associated Plywood Mills, Inc. 145

B

Bailey and Sons, Inc., S. J. 191
Bass, Rudolf 132
Bates Manufacturing Company 169
Beach Manufacturing Company 36
Bell Machine Company 49
Bertheisen Engineering Works 154
Beverly Manufacturing Company 93
Bickler, Edgar G. 206
Birds Eye Veneer Company 150
Black Bros. Company, Inc. ..... Inside Front Cover
Blake & Johnson Company 27
Boice-Crane Co. 105
Bostitch Inc. 21
Branyan & Peterson, Inc. 193
Breuer Electric Manufacturing Co. 7
Buelte Tool & Engineering Company 181
Burton Saw Company 182
Buss Machine Works 9

C

Cardinal Company 191
Carter Products Company 215
Chaney Manufacturing Company 208
Cincinnati Tool Company 173
Click, Mrs. A Graham (Veneer Tables) 184
Clifton Machinery Company 189
Coe Manufacturing Company 125
Consolidated Machinery & Supply Co., Ltd. 103
Continental Screw Company 101
Cushman Manufacturing Co., H. T. 192

D

Davis Plywood Corp. 155
De Luxe Saw & Tool Company 211
Deacon Plywood Company, J. C. 157
Delmhorst Instrument Company 138
Delta Power Tool Div. (Rockwell Mfg. Co.) 18-19
Detro Manufacturing & Sales Company 180
Detroit Edge Tool Company 61
Detroit Stamping Company 106
Detroit Surfacing Machine Company 84
DeWalt, Inc. 114
Diehl Machine Works, Inc., G. M. 31-73
Doig Inc., Wm. S. 94
Dremel Manufacturing Company 99

E

Eagle Sales Company 76
Ekstrom, Carlson & Company 213
Electric Equipment Company 193
Ervin Machinery Company 191-204

F

Fader & Company, A. L. 200
Falk Machinery Co., Inc. 19
Field Co., Wm. H. 17
Foley Manufacturing Company 11
Forest City Bit and Tool Company 5
Fox Company, John P. 176

G

Gaynes Engineering Company 139-194-207
Georgia Pacific Plywood & Lumber Co. 140
Globe Vise and Truck Company 177
Gluetools Inc. 6
Goggle Parts Company, Inc. 102
Goodspeed Machine Company 131
Green Machinery Co. 190
Greenlee Bros. & Co. 8
Greenlee Tool Co.
(Div. Greenlee Bros. & Co.) 140
Gustafson & Scott Manufacturing Co. 30-171-209

H

Hackett Co., J. Lee 191-195-197
Hamilton Caster & Manufacturing Company 181
Hanchett Manufacturing Company 12
Harrington, Inc., S. W. 189
Harris Machinery Company 192
Hart Woodworking Machine Co., Earle ..129-188-205
Hartford Clamp Company 175
Haskew & Company, R. K. 192
Hastings Sales Engineering Company 177
Hawker Mfg. Company 41
Heinemann Saw & Mfg. Company, F. 180
Henniker Machine Company 92
Hermance Machine Company 193
Hill Brothers Veneer Company 128
Hurricane Machine Works 173

I

Imrie Dry Kiln Company 126
Indiana Fdry., Machine & Supply Co. 168

J

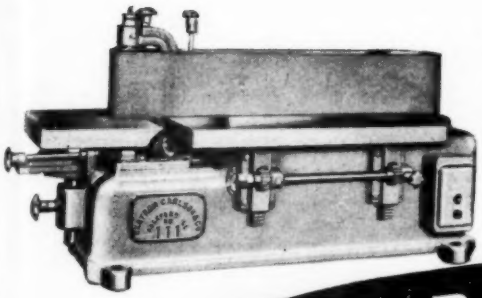
Jakes Foundry Co. 171
Jiffy Manufacturing Company 28
Jones & Orth Cutter Head Company 11

K

Kearney & Trecker Corp. (Walker-Turner Div.) .64-65
Keller Products Inc. 148
Kenner, L. R. 188
Klok Institute 137
Koppers Company, Inc. 17
Kreig, Victor 162

L

Lakeshore Machinery Company 201
Laminated Veneers Inc. 150
Land, Inc., L. J. 193
Larson Plywood Company 152
Lumber Manufacturers Inc. 53
Lundberg, David V. 198



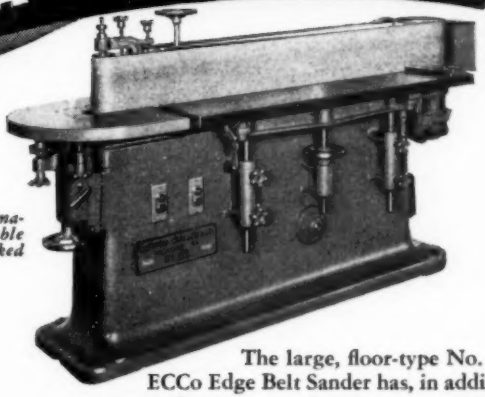
EKSTROM CARLSON

No. 111

No. 111 is furnished as a bench model or on a sturdy floor stand.

EDGE BELT SANDERS

"PROVIDE FOR TOMORROW BY BUYING TODAY"



No. 112

No. 112 is a single-side machine, No. 112A has double backboards and can be worked at from both sides.

WRITE FOR LITERATURE

Learn all about the interesting details of ECCo Edge Belt Sanders. Write today for copies of Bulletins 111 and 112.

CONDENSED SPECIFICATIONS

	No. 111	No. 112
Work Table Size..	8"x26"	11"x60"
Abrasive Belt Travel FPM.....	3200	4400
Vertical Adjustment of Table...	5"	4"
Height of Table in Lowest Position.	13"	35"
Space Required (With End Table)	20"x52"	28"x92"

The large, floor-type No. 112 ECCo Edge Belt Sander has, in addition to many refinements, an important outstanding feature — the oscillating backboard, the motion of which is synchronized with the oscillation of the belt. This results in a cooler-running belt, longer belt life, and greater sanding power through higher efficiency. The smaller No. 111 machine is a portable unit, available for bench mounting or on its own floor stand, and ruggedly built for *heavy duty* service. The need for a portable machine is amply demonstrated by the large number now in service in prominent woodworking plants of many kinds.

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M

McDonald Machinery Company 207
McDonough Mfg. Company 179
McKnight Machinery Company 51
MacNeil Machinery Company 192
Marcoloy, Inc. 16
Marion Machine, Fdry. & Supply Co. 151
Marks Woodworking Machinery Co. 192
Masonite Corporation 2
Mattison Machine Works .....Back Cover
Media Machine Works 167
Meréen-Johnson Machine Company 147
Merit Products, Inc. 10
Meyers Company, Inc., W. F. 160
Midwest Manufacturing Company 127
Minneapolis Machine & Tool Company 183
Moak Machine & Tool Company 187
Moline Paint Manufacturing Company 90
Monite Waterproof Glue Company 158
Moore Dry Kiln Company 136
Mummert-Dixon Company 82
Myers Truck & Caster Company 178

N

National Adhesives 14-15
National Air Sander, Inc. 91
National Casein Company 25
Nelson Company 130
Newman Machine Company 66
Northern Hardwood Veneers Inc. 159
Northfield Foundry & Machine Company 153

O

O'Leary & Flynn 208
Oliver Machinery Company 1
Onsrud Machine Works, Inc. 174
Osborne & Sexton Machinery Co. 192-202-203

P

Paddock Tool Co. 139
Paisley Products, Inc. 69
Parks Woodworking Machine Co., The 71
Paxton Lumber Company, Frank 179
Pearson Sanding Machine Company 32-33
Peterzell and Company, Victor 188
Pheoll Manufacturing Company 83
Plycor Co. (Div. Earle Hart Woodworking Machine Co.) 129
Pootatuck Corp. 185
Porter-Cable Machine Company 216
Porter Machinery Company, C. O. 3-170
Power & Company, L. 29
Process Engineering Corp. 173
Protection Products Manufacturing Co. 34

R

Reed, Victor, J. 193
Rockford Screw Products Company 108
Root Company, B. M. 209

S

Salstrom Carving Machine Company 107
Sand-Rite Manufacturing Company 52
Saw & Knife Specialty Company, Inc. 171
Schrader's Son, A. 23
Sheboygan Machine Company 62
Shimer & Sons, Samuel J. 178
Simonds Saw & Steel Company 111
Sinker-Davis Company 24
Slater Saw Company, F. M. 172
Smith Machine Company, H. B. 4
Spanner, H. D. 195
Spotnails, Inc. .....Inside Back Cover
Stalter Edge Tool Company 100
Standard Dry Kiln Company 133
Stanley Works 22
Sta-Warm Electric Company 171
Stem, Inc., Chester B. 131
Stephenson Manufacturing Company 177
Stoddard Machinery Company 192
Sundstrand Machine Tool Company 26
Supreme Woodworking Machinery Co. 206
Surplus & Salvage Company, Inc. 191
Sutton Woodworking Machine Company 196

T

Tannewitz Works 26-185
Taylor Manufacturing Co., James L. 72
Thayer Company, W. W. 189
Timesavers, Inc. 109-193
Titan Tool Company 175
Trosclair, W. J. 189

U

U. S. Cutting Chain Manufacturing Co. 184
Used & Rebuilt Machinery 188

V

Veneer Machinery Company 118
Vulcan Electric Company 182

W

Walkerbilt Woodwork Inc. 194
Walker-Turner (Div. Kearney & Trecker Corp.) 64-65
Wallace & Company, J. D. 164
Walter & Company, Inc., B. 165
Wapakoneta Machine Company 6
Wardwell Manufacturing Company 104
Wayne Lumber Company 194
Weston Electrical Instrument Corp. 78
Wetzler Clamp Company 79
Whipple & O'Brien 191
Whitney & Son, Inc., Baxter D. 13
Wisconsin Knife Works 97
Woodward Machinery Company 189
Woodworkers Tool Works 112-113-175-176-188
Wrought Washer Manufacturing Company 175
Wyatt Machinery, C. G. 193
Wysong and Miles Company 80

Y

Yates-American Machine Company 38-39
Young & Bertke Company 161

Z

Zeiller and Nagel Inc. 58

.....172
..... 4
.....195
ack Cover
.....100
.....132
..... 22
.....171
.....131
.....177
.....192
..... 26
.....206
.....191
.....196

..26-185
..... 72
.....189
.109-193
.....175
.....189

.....184
.....188

.....118
.....182

.....194

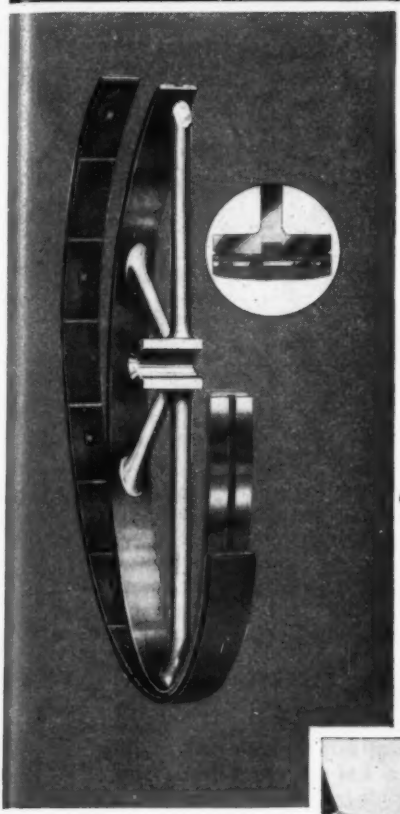
...64-65
.....164
.....165
..... 6
.....104
.....194
..... 78
..... 79
.....191
..... 13
..... 97
.....189
-176-188
.....175
.....193
..... 80

...38-39
.....161

..... 58
DIGEST

New, Revolutionary...

Carter JIFFY-TIRES



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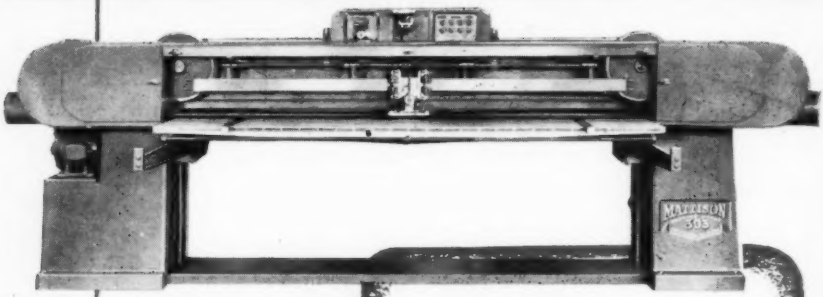
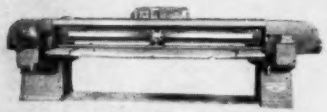
MATTISON'S NEW
No. 303 Automatic STROKE SANDER



Front View Mattison No. 303
Automatic Stroke Sander — Single Belt



Mattison No. 303
Automatic Stroke Sander — Double Belt

Rear View Mattison No. 303
Automatic Stroke Sander Single Belt

• The Mattison No. 303 Automatic Stroke Sander is the last word in modern engineering. From the standpoint of design — construction — smoothness of operation and appearance, it is in a class by itself. Results that can be expected are faster output, better quality of work, and trouble free operation. These important features are all to your advantage. Hydraulic system for operation of shoe is simple yet positive in action, providing smooth operation of sanding shoe the entire length of stroke. Belt speeds to meet your needs. All controls are within easy reach of operator. The sand belt is completely enclosed at top and both ends for dust control and safety. Belts are easily and quickly changed. Aluminum sanding shoe is mounted on ball bearings for easy operation and control. Massive base and column construction provide solid foundation. The Mattison No .303 Automatic Stroke Sander is recommended as the most efficient method for finish sanding large, flat surfaces such as tops, panels, doors, etc. It provides perfect work on a real production basis. Double-belt model with coarse belt for removing tape and glue, and fine belt for finish sanding, speeds up production by reducing handling time and, in many cases, eliminates drum sander operation.

Send for complete information on the 303, the latest in stroke sanders.

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